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Disposition of Abitibi Co. Still Uncertain

Testimony Before Royal Commission Reveals Confusion of Plans For Disposition of Abitibi Power & Paper Co., Which Holds Large Concessions — Full Value of Company Estimated At $83,422,000.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., Nov. 18, 1940—The latest news in connection with the muddled affairs of the great Abitibi Power and Paper Company, now under investigation by a royal commission appointed by the Ontario government, is a report, given credence in many high financial quarters, that the bondholders' protective committee have asked the Montreal Trust Company to apply to the Ontario courts for a new sale order.

Following the abortive sale proceedings of October 16, when the bid of the bondholders' protective committee of $30 millions was declared under a reserve bid set by the master of the Supreme court, representatives of the committee had stated that they did not agree that sale proceedings were necessarily at an end.

Abitibi Dependent on Government Timber

There is speculation as to what attitude Premier Hepburn and his government will take towards another application for the judicial sale of the properties. The Abitibi company is dependent for its timber supply on the provincial government. On the other hand, it is pointed out by those competent to express an opinion on the matter, that the action in applying for a new sale order by the bondholders' committee is a court question and quite apart from the action taken by the government in setting up a royal commission to enquire into Abitibi affairs. The issue is one of legal rights for the courts to decide it is claimed by legal authorities.

Company Holds Large Concessions

The extent of the company's material requirement is indicated by the fact that one concession alone, held by Abitibi, north of Sault Ste. Marie, extends over 10,044 square miles of pulpwood for its mill in that city. There are 4,529 square miles in the Iroquois Falls concession, which also includes the 26-mile standard gauge railway which feeds the mill there. The Smooth Rock-Mattagami section has 1,060 square miles of limits, while in the Sturgeon concession there are another 2,525 square miles. The Spanish River concession, which the company admits is now practically worthless to the Espanola mill, covers 3,857 square miles. The Spanish extension concession holds another 3,130 square miles, while the Thunder Bay and Fort William concessions have a combined mileage of 4,376. Provincial Paper Company, owned by Abitibi, holds 2,500 square miles. Abitibi holds another 2,760 square miles in Manitoba at Pine Falls and 460 square miles at Beaupre in Quebec.

The Abitibi company owns power plants at Iroquois Falls, Island Falls and Twin Falls on the Abitibi River; at Smooth Rock Falls, Sturgeon Falls, Crystal Falls, Kakabeka Falls and Port Arthur. Its paper mills are at Iroquois, Smooth Rock, Sturgeon, Espanola, Sault Ste. Marie, Fort William, Port Arthur, Pine Falls, Beaupre, Georgetown, Thorold and Mille Roche. In its earlier days the company owned entire towns, building its own houses, stores and other buildings for employees. It owns a steamship and a fleet of tugs. It develops so much power at some cities, such as Island Falls, that it is cheaper for the company to leave the street lights burning all day than to install switches and pay a man to turn them off.

Favors Reopening of Two Mills

Norman E. Wainwright, of Hamilton, Ont., who until a year ago had operated the Don Valley Paper Company at Toronto, and from 1920 to 1928, was associated with Provincial Paper Company, appeared before the royal commission on November 12, urging the re-opening of the Espanola and Sturgeon Falls mills of the Abitibi and holding out a potential offer of $2,500,000 for the Provincial Paper Co. Mr. Wainwright had written Premier Hepburn recently urging the separate sale of the Provincial Paper Co. The Sturgeon Falls and Espanola mills "would be operating today had it not been for the unnecessary construction of three new mills," Mr. Wainwright said. They were "victims of over-expansion and exploitation of the industry," he charged. Canadian manufacturers, he claimed, had failed to search and lacked the enterprise to find markets for other grades of paper than newsprint. At least 12 other grades of paper could be exported to other parts of the British Empire, he claimed.

(Continued on page 14)

Ahdawagam Co. Workers' Wages Increased

Male Employees' Pay Increased To 58 Cents Per Hour and Female Workers To 45 Cents Is Announced By General Manager of Ahdawagam Paper Products Co.—Pulpwood Carrying Ship Wrecked

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 18, 1940—Employees of the Ahdawagam Paper Products Company, Wisconsin Rapids, Wis., were given a wage increase of two cents per hour effective November 10, according to an announcement of Frank R. Walsh, general manager. The wage contract effective last May 1 was amended accordingly, after negotiations were carried on by representatives of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. Male employees were increased from 56 to 58 cents per hour, and female workers from 43 to 45 cents.

First All-Union Contract Signed

A wage increase also was granted 60 union molders, machinists and other production workers of the Nekoosa Foundry and Machine Shop, Nekoosa, Wis., makers of paper mill machinery. The increase was part of an all-union working agreement signed last week by the company and Local 1543, International Association of Machinists. It was the first all-union contract signed by the company and will be in effect for one year. The agreement provided for a five per cent increase in wage scales. New employees are givn thirty days in which to arrange for union membership. M. J. Power, president of the company, carried on the negotiations with the union, which was represented by Paul C. Huybrecht, international representative, and a local bargaining committee.

Pulpwood Carrier Wrecked

One of the casualties in last week's storm on Lake Michigan was the 253-foot pulpwood carrier Novadoc. The ship was en route from South Chicago, Ill., to its home port at Fort William, Ontario. It went aground near Pentwater, Mich., with its crew of 19, and was practically wrecked by the high gale. The crew was obliged to cling to the wreckage until the wind subsided, so a coast guard boat could remove them to safety. The ship was built in 1928, with a gross tonnage of 1,934.

More Power for Paper Mills

The Wisconsin Public Service Corporation, serving numerous paper and pulp mills and converting plants in the Fox and Wisconsin River Valleys, announced a construction program for 1941 with estimated expenditures of $4,478,000. The project was approved by the board of directors at a meeting at Green Bay, Wis., November 15.

The major expenditure, according to J. P. Pulliam, president, will be an addition to the Bayside steam generating plant at Green Bay, costing $2,640,000. Another $100,000 will be spent for an interconnection with the Wisconsin Michigan Power Company system, serving the Fox River Valley and Upper Michigan. Construction of a new office building in Wausau, Wis., will be carried on at a cost of $105,000.

Other improvements include:

Replacement of the present circuit breakers and other equipment at the west side power plant in Wausau, totalling $27,700.

Rebuilding portions of the dam on the Wisconsin River at Merrill, Wis., and minor changes in the plant, $15,450.

Additional transformer regulator capacity at Rothschild, Wis., where the Marathon Paper Mills Company is located, $8,800.

Rebuilding of the substation at Marathon, Wis., $2,500.

Construction of a new substation at Merrill, $27,700.

Relocation of 5.3 miles of transmission line between Mosinee and Stevens Point, Wis., $18,900.

At a meeting in Chicago November 14, the directors declared a dividend of 30 cents per share on common stock, payable December 10 to stockholders of record November 30. A dividend of ten cents per share was paid September 10.

Directors also declared regular quarterly dividends of $1.75, $1.62½ and $1.50 per share, respectively, on the series "A" 7 per cent, series "B" 6½ per cent, and series "C" 6 per cent cumulative preferred stocks, all payable December 20 to stockholders of record November 10.

Employes to the number of 1,350 will receive a Christmas bonus, the board decided, based on 3 per cent of their annual earnings, with a maximum limit of $75.

Whiting-Plover Foreman Retires

William Marquardt, cutter foreman for the Whiting-Plover Paper Company, Stevens Point, Wis., since 1905, retired last week at the age of 71, after 43 years of service with the company. He entered the company's employment in 1897, first working in the rag room, where he tended the rotary boilers. Five years later he left Whiting-Plover and worked for a time at the Wausau Paper Mills Company at Brokaw, Wis., the Wisconsin River Paper and Pulp Company, Stevens Point, and for the mill started by the Kansas City Star. He returned to Whiting-Plover in 1903, and has been associated there ever since. During all this period he suffered only one lost-time injury, when a shaft fell on a toe. In his earlier years, he was engaged with logging crews in northern Wisconsin. Mr. Marquardt is in excellent health, and intends to enjoy his leisure with automobile trips, lodge work and his garden.

Zellerbach Paper Co. To Be Distributor

The L. L. Brown Paper Company, Adams, Mass., announces the appointment of the Zellerbach Paper Company as distributor of L. L. Brown's Linen Ledger, Greylock Linen Ledger and Advance Bond in San Francisco, Stockton, Fresno, Oakland, Sacramento, San Jose and Reno. The first and last papers mentioned are made from 100% new, white rag fibres, while Greylock Linen Ledger is made from 85% new rag cuttings.

Broader Paper Demand Reported in Midwest

Sulphites, Groundwood and Kraft Papers Reflect Improved Demand With More Active Market In Prospect — Waste Paper Market Stronger — Rebate On State Sales Taxes Is Barred.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 18, 1940—Without a great amount of outward change but with an inward conviction that the paper industry is going into "higher gear" in the near future, the Chicago paper industry this week began to enjoy the fruits of after-election business improvement and better weather conditions which have had a definite effect on the market in general. Sulphites reported a widening of demand in many quarters. Groundwoods held to better levels as demand was reported to have improved. Krafts showed a strengthening as the markets moved closer to the end of the year. Books and covers evidenced an undercurrent of buying betterment all along the line while bonds and ledgers found demand better. Specialty papers indicated that holiday trade would be good. Waste papers likewise showed some further strengthening, particularly in the higher grades.

Bar Rebate on Sales Taxes

The Illinois "war" on attempts to drain the revenue funds of the State through refunding of sales taxes and through a narrowing of the tax base took a new turn this week. Last week we reported to the paper industry that as of November 1 paper sold to contractors and materials firms would not be subject to the 3 per cent Retailers Occupation Tax. That revision of Rule 6 seems very likely to be abrogated. Late this week Judge Harry Fisher of the circuit court held that the revision of Rule 6 granting contractors and material men exemptions in payment of the sales tax was "unfortunate, indelicate and unnecessary and had no standing in court."

The ruling of the Judge would seem to abrogate the Revision of Rule 6 and place those selling paper to materials firms and contractors about back where they were prior to November 1, eligible to pay the tax to the State for sales made to ultimate consumers i.e., the contractors and materials men. Judge Fisher also stated that the Department of Finance of the State had no right to grant refunds and that any refunding which might be necessary would have to go through the court of appeals. This latter decision is a blow to many whose refunds—because of over payment or error in payment—have been audited by the Department but not approved for credit because of the above mentioned suit. The entire matter has a direct interest to the paper trade particularly to those selling paper for use in construction and road improvement industries.

Duckett Paper Company Expands

From Champaign, Ill., comes the story of the unusual growth of a wholesale paper firm organized in 1938. This company, the Duckett Paper Company, recently moved into a new two story building which gives its operations a total of 8000 square feet of floor space. Formed in 1938 by E. E. Duckett and with little more than a hotel room to serve as headquarters, the company added a partner in the person of R. J. Seus and today has not only the two partners but five salesmen to serve a rapidly growing clientele in the central part of the State of Illinois.

Stein-Hall Celebrating 75th Anniversary

One of the important suppliers to the paper trade, the Stein-Hall Company, is celebrating its 75th anniversary. Founded away back in 1866 this company with New York and Chicago headquarters and a widely developed sales force extending into all parts of the country, is planning special recognition of its Diamond Anniversary. The Stein-Hall Company is headed in Chicago by L. E. Leverone, prominent in civic and social affairs and actively identified with the legislative programs of both the Illinois Chamber of Commerce and the Chicago Association of Commerce. Its special paper mill division is headed by H. F. Gardner who handles Chicago laboratory developments which are specifically centered on actual paper manufacturing problems. Stein-Hall has developed many products utilized by the paper industry the country over. These include Logel, a beater starch product; Colloidites, popular tub sizing starches; Super cotes, a coating gum for brush coating and wall paper usages and Enzo Starch for enzyme conversion.

Salesmen Combine Sport and Business

Members of the western division of the Salesmen's Association of the Paper Industry this week enjoyed the usual combination of "shop talk" and football gossip which has characterized the weekly programs since the Monday sessions were held in collaboration with the "Wailing Wall" meeting of football "quarterbacks." Last week twenty of the SAPEYES saw movies of the Minnesota-Michigan game, enjoyed the ceremonies wherein Minnesota official alumni representatives received the "Little Brown Jug" from Michigan officials and then adjourned in their own room to go over trade matters directly affecting the paper industry in this territory. The combination meetings which will last thru the football season are reported to have helped attendance to a marked extent.

Fund Drive Slows Up

Chicago paper executives are going to have to "shoot the works" this week and next to secure their share of the $3,604,000 being raised for Chicago charities during Community Fund month. To date the paper division under the direction of Wesley M. Dixon of the Container Corporation of America has gathered together a bit over $16,000 or around 53 per cent of its total of $30,000 as compared to the 85 per cent which the general group has secured thus far. However, paper executives are confident that the amount of $30,000 will be reached in the near future and certainly by December 1 when the 1940 Community Fund campaign will become a matter of history.

Pacific TAPPI Discusses Personnel and Viscosity

The Pacific Section of the Technical Association of the Pulp and Paper Industry held its second dinner-meeting of the fall series, at Everett, Wash., on Nov. 12, 1940. F. A. Olmsted presided as chairman.

Development of Leadership

L. A. Williams, District Manager of the Puget Sound Power and Light Company of Everett, repeated by request a paper presented October 10 to the Pacific Northwest Personnel Management Association at Portland, Ore. His topic was the development of leadership in supervisory people. Starting with the assumption that the home, the school, and the church had prepared an individual with a correct understanding of our American Way, Mr. Williams proceeded to review the mistakes frequently made by management after employment. It is his conception that our times require careful study and planning so that supervisory personnel will develop within organizations to the extent that they will be in tune with present-day conditions, efficiently and correctly represent their managements. Employees with this ability must be taught and inspired, but in order to be inspired they must have adequate instruction.

E. D. Rich Presents Paper

Cuprammonium viscosity as a pulp and paper mill control test was the subject of a paper presented by E. D. Rich, Oregon Pulp and Paper Company, Salem, Ore. A summary of Mr. Rich's remarks follows:

Ordinarily the permanganate or hypochlorite bleachability tests are run on pulp to determine the results of the cooking or the amount of bleaching which the pulp might require. This essentially is a measurement of the pulp fiber encrustants, whereas it gives no true value of the cellulose itself. Pulps made from wood of various species or the same species under different growing conditions might exhibit the same bleachability number but the quality of the cellulose fiber may be vastly different.

During the last decade, the cuprammonium viscosity test has been widely adopted for the testing of dissolving pulps. The present test which takes at least 20 hours to run is quite satisfactory for the testing of the finished pulp, but even in many cases the long period of time required to make the test caused an inconvenience in the matter of shipping the finished material.

The viscosity test gives an excellent measurement of the change or degradation of quality brought about in the cellulose fibers by various chemical actions during the manufacture of a finished cellulose product. It would thus appear that a rapid method of testing the pulp would be of value in control work. Several operating mills have devised shortcut methods and this article offers a method in which a pulp sample may be gathered, prepared and the viscosity test determined within 15 minutes. It is thus possible to take stock samples from the digester toward the end of the cooking period and from the test determine the additional time required before blowing the digester. The washing in the blow pits can also be evaluated on the degrading effect it might have upon the cellulose and the same conditions for any location in the plant where the pulp is washed. The degrading effect of residual chemicals after washing will give a determination of the efficiency of washing. This test may also be applied in the bleaching plant to determine the drop in viscosity in the chlorination, causticizing or bleaching stages.

Those in Attendance

Among those present were: O. C. Abbott, Tore Ahlen, Jerry Alcorn, Fred Armbruster, A. Bailey, Henry E. Becker, C. H. Belvin, H. K. Benson, H. K. Berger, W. L. Beuschlein, Jasper R. Blair, G. S. Brazeau, Jim Brinkley, G. H. Cady, Ivan Campbell, Kenneth Chapman, Sidney M. Collier, N. W. Coster, J. V. B. Cox, E. O. Ericsson, O. E. Fox, J. D. Fraser, N. O. Galteland, Irving R. Gard, A. S. Gerry, William R. Gibson, Geo. A. Gladding, Alfred Graef, Gerald F. Green, Harold G. Griep, Devane Hamilton, R. N. Hammond, D. W. Harris, Andrew D. Hawley, Raymond P. Hill, A. B. Hilmo, Karl Holt, Chas. A. Hulsart, Lester M. Johnson, R. E. LeRiche, Halvar Lundberg, Robert W. Martig, Jack Martin, J. H. McCarthy, John J. McMair, Robert W. Miller, D. C. Morris, F. A. Olmsted, Adolf Orup, Oscar J. Olson, Paul A. Pittinger, E. D. Rich, Carl Ries, Oliver Emory Ronken, H. Radford Russell, S. A. Salmonson, Walter A. Salmonson, B. W. Sawyer, Geo. E. Schmidt, Harlan Scott, Fred Shaneman, J. M. Shedd, Brian L. Shera, R. E. Simkins, H. N. Simpson, M. E. Sorte, E. E. Stephens, James B. Symonds, H. V. Tartar, R. I. Thieme, H. A. Vernet, G. R. Vernig, Edward A. Bohs, Harold F. Warren, L. A. Wendt, L. A. Williams, Edward P. Wood, R. E. B. Wood, and O. H. Woolford.

Overtime Evasions Illegal

Continuing to pay the same salary to workers for a 42-hour week after October 24 is a violation of the Fair Labor Standards Act, even though the employer makes a show of compliance through bookkeeping manipulations, Colonel Fleming, Administrator of the Wage and Hour Division, U. S. Department of Labor, warned today.

On October 24, the standard workweek was reduced to 40 hours, after which overtime at time and one-half the regular rate of pay had to be paid.

Colonel Fleming pointed out the illegality of adopting a bookkeeping rate for the purposes of the overtime provisions of the Wage and Hour Law and a different rate for actual payment.

"The Act requires that overtime must be paid at the rate of time and one-half the 'regular rate' of pay at which the employee is employed," Colonel Fleming said. "Time and one-half must be paid upon the rate at which the employee is actually employed and paid, and not upon a fictitious rate which the employer adopts solely for bookkeeping purposes."

These practices are violations of Section 7 and as such will subject the employer to the penalties prescribed in the Act, Colonel Fleming warned.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 20, 1940—R. P. Andrews Paper Company has been awarded the contract for furnishing the Government Printing Office with 20,475 pounds of 24 x 38, No. 56 white sulphite ledger paper at 5.87 cents. The same firm will also furnish 15,600 pounds of the same No. 64 at the same price. Stanford Paper Company will furnish 10,000 pounds of 100 per cent rag, 28 x 34 white ledger paper at 19.25 cents and the Aetna Paper Company will furnish 25,200 pounds of 50 per cent rag, 31 x 38 white bond paper at 10.63 cents. Bids for all of these items were received on October 30.

Paper Corporation of the U. S. will furnish 10,000 pounds of 75 per cent rag, 23 x 36 white ledger paper at 14.8 cents and the Aetna Paper Company will furnish 26,550 pounds of 50 per cent rag, 23 x 36 white bond paper at 10.54 cents. Also the Cauthorne Paper Company will furnish 57,600 pounds of 20 x 25 Quaker drab antique M. F. cover paper at 6.84 cents. Bids for these items were received on October 28.

Mudge Paper Company will furnish 9,450 pounds of 29 x 41 India tint supercalendered book paper at 6.25 cents, bids for which were received on October 25.

Mathers-Lamm Paper Company will furnish 5,000 sheets of rope manila paper in 48 inch rolls at 16.5 cents, bids for which were received on October 23.

Mudge Paper Company will furnish 13,200 pounds of 50 per cent rag, 26 x 34 white passport paper at 13.34 cents, bids for which were received on October 21.

Barton, Duer & Koch Paper Company will furnish 5,000 sheets of 14 x 16, 100 per cent rag, rag mounting board at $78.00 per M sheets. Also Mudge Paper Company will furnish 15,530 pounds of 75 per cent rag, 41 x 50 litho finish map paper at 12.01 cents and also 9,225 pounds of same 44 x 56 at same price. Mudge Company will also furnish 6,425 pounds of same 30 x 40 at 12.48 cents and 6,558 pounds of same 44 x 56 at the same price. R. P. Andrews Paper Company will furnish 2,100 sheets of buff railroad board 22 x 28 at $73.33 per M sheets. Bids for these items were received on October 14.

Government Printing Office has received the following bids for 42,000 pounds (1,500,000 sheets) of 50 per cent rag, white M. F. lithograph paper; Mudge Paper Company, 10.38 cents; R. P. Andrews Paper Company, 10.25 cents; Stanford Paper Company, 11.48 cents; Old Dominion Paper Company, 10.626 cents; Paper Corp. of U. S., 10.24 cents; Graham Paper Company, 11.587 cents; and Cauthorne Paper Company, 10.64 cents.

For 64,000 pounds (500,000 sheets) of 25 per cent rag, 34 x 44 white bond paper; R. P. Andrews Paper Company, 10.23 cents; Stanford Paper Company, 9.6 cents; Aetna Paper Company, 10.38 cents; Whitaker Paper Company, 10.25 cents; Mudge Paper Company, 10.21 cents; Baxter Paper Company, 10.57 cents; Butler Paper Company, 9.76 cents; Paper Corp. of U. S., 10.47 cents; and Cauthorne Paper Company, 10.24 cents.

For 68,800 pounds (800,000 sheets) of 50 per cent rag, 21 x 32, No. 48 white bond paper; R. P. Andrews Paper Company, 10.81 cents; Stanford Paper Company, 10.35 cents; Aetna Paper Company, 10.69 cents; Mudge Paper Company, 10.71 cents; Old Dominion Paper Company, 13.48 cents; Paper Corp. of U. S., 11.95 cents (all or none); Chicago Paper Company, 10.56 cents (all or none); and Cauthorne Paper Company, 10.83 cents.

For 7,800 pounds (100,000 sheets) same No. 40; R. P. Andrews Paper Company, 10.78 cents; Stanford Paper Company, 10.35 cents; Aetna Paper Company, 10.69 cents; Mudge Paper Company, 10.67 cents; Old Dominion Paper Company, 13.48 cents; Paper Corp. of U. S., 11.95 cents (all or none); Chicago Paper Company, 10.82 cents (all or none); and Cauthorne Paper Company, 10.78 cents.

For 39,100 pounds of 85 per cent rag, 38 x 48 litho finish map paper; Mudge Paper Company, 12.98 cents; R. P. Andrews Paper Company, 13.09 cents; Stanford Paper Company, 13.39 cents; Paper Corp. of U. S., 13.70 cents; and Cauthorne Paper Company, 13.39 cents.

For 34,500 pounds of 31 x 32 white sulphite ledger paper; Stanford Paper Company, 6.09 cents; Whitaker Paper Company, 6.91 cents; Mudge Paper Company, 6.55 cents; R. P. Andrews Paper Company, 5.87 cents; Mathers-Lamm Paper Company, 6.5 cents; Walker Goulard Plehn Company, 6 cents less 2 per cent; Marquette Paper Company, 5.8 cents; Eastern Corp., 6.75 cents; Old Dominion Paper Company, 6.4935 cents; Cauthorne Paper Company, 7.25 cents.

For 36,000 pounds of 50 per cent rag, 32 x 42 double coated book paper; Stanford Paper Company, 14.25 cents; Barton, Duer & Koch Paper Company, 14.59 cents; Mudge Paper Company, 12.41 cents; Old Dominion Paper Company, 13.959 cents; Chicago Paper Company, 13.83 cents; Virginia Paper Company, 14.85 cents; Graham Paper Company, 15.35 cents; and Cauthorne Paper Company, 13.6 cents.

New Booklet on Pumps and Pump Parts

A new illustrated booklet containing comprehensive information on pumps and pump parts, published by The International Nickel Company of 67 Wall street, New York, has just come from the press. This 16 page folder, "Practical Pumping Problems and How They Are Solved," discusses in detail the uses of Monel, "K" Monel and "S" Monel for pump parts in applications where there is need for high resistance to corrosion, wear, pitting, or scoring. This includes different types of pumps, such as reciprocating, centrifugal, and rotary pumps.

Part of the book is devoted to a review of case histories. Complete performance data is given on pumps in various applications which suggest how sizeable savings can often be made in maintenance and replacement costs. Much attention is given to the choice of suitable materials for pumps handling a variety of corrosives in a wide range of industries, including power, chemical, municipal water supply, processing, railroad, steamship operation, and other diversified fields.

DISPOSITION OF ABITIBI CO. STILL UNCERTAIN

(Continued from page 9)

G. W. Mason, assistant counsel for the commission, asked Mr. Wainright on what he based his valuation of Provincial Paper common stock at $2,500,000, and Mr. Wainright said the stock had paid $1 a share and this year might pay $3 or $4 before excess profits tax was considered. The company had reduced its bonds by $1,500,000, he said, and "where did the money come from?" he wanted to know. Also, the plants had been improved and could have been written up another two or three million. He thought a purchaser could be found who would pay the price for the company. He said he had the backing of one bank and a security house himself.

Creditor Claims Aggregate $218,558

W. Kaspar Fraser, representative of the general creditors' committee, said the committee represented 407 creditors with claims aggregating $218,538. The great majority were unsecured trade creditors. In addition, he said, their claims aggregate approximately two-thirds of the trade creditors' claims other than the claims of the Newsprint Bond and Share Company, which company has an admitted claim of $417,255. Newsprint Bond and Sales Company is itself in liquidation, he said. Mr. Fraser added that his committee had collaborated with the preferred shareholders' committee and the common shareholders' committee and was satisfied no difference of opinion would arise between the three committees in respect to provision for unsecured creditors.

Alexander Smith, New York, former president of Abitibi, appearing before the commission, said he had a distinct moral obligation to all security holders. "I built this company," he said. "Perhaps I mismanaged it." To effect a re-organization, he said he would give first mortgage bondholders $48,000,000 first mortgage bonds, new four per cent. sinking fund bonds, with accrued interest, but no interest on interest, which amounts to $22,000,000. For that they would get 1,080,000 shares of common as a loan for collateral. The company should earn $7,500,000 to $8,000,000 a year for the next five years, he claimed. He estimated the value of the company's assets at $83,000,000.

"Canadian paper manufacturers, forced to sell to live, were responsible for the decline in the newsprint industry, which led to the liquidation of the Abitibi," he said. "There weren't any angels in the forced selling which followed over-production," he said. "We are all equally guilty. There were secret rebates and no one knew what his competitor was selling at."

However, in 1934, the manufacturers got together in an attempt to rectify the situation. Canada faced no real competition in the manufacture of newsprint from southern pine, Mr. Smith said, and "it will take some time before southern pine will produce a quality of newsprint as fine as can be made from northern spruce," he said. "There is not a doubt in my mind, though, that it is a future thing to contemplate. At present prices you are quite safe for some time to come," Mr. Smith said.

Mr. Smith testified that he had been president or vice-president of Abitibi from 1912 to 1932, when the company went into receivership. In 1928 the company showed substantial earnings, as was the case in 1929, 1930 and 1931 and bond interest was paid, he said. "The sudden reversal was due primarily to terrific over-production of newsprint and the terrific drop in prices. I see it as a situation that will never recur. The provincial government would never let it happen again, and the power sites and lumber are no longer available."

Value of Abitibi Estimated at $83,422,000

He would not regard any manufacturing asset as having any value outside its power, Mr. Smith affirmed. "A newsprint mill today, just a physical plant, without timber limits or anything else, costs $30,000 a ton per day to operate. The mill could put a ton of paper on the cars at $25 a ton, mill cost. But to this must be added freight, taxes, depreciation, and administration costs. I call that a par mill. But for every dollar increase in mill cost, I add $3,000 to the capital cost per day. On a 310-day year you'll find it about a 10 per cent return on investment. That is the basis of full operation—and there is hardly such a thing. On that basis I estimate the full value of the Abitibi property at $83,422,000."

The commission was expected to take a recess from Friday afternoon for perhaps two weeks to permit Commission Chairman Mr. Justice Charles McTague to attend to other duties at Ottawa.

A Study of the Beater

An informative discussion of the practical considerations in beating operations is clearly presented in a 64-page booklet entitled "A study of the beater." The text has been written by Samuel Milne with supplementary notes by Dwight L. Jones, chief engineer of the E. D. Jones & Sons Company, Pittsfield, Mass., the publishers.

The booklet is a discussion of beating operations and the work performed by the Milne Patent Beater, and the Jones-Betrams Patent Beater.

The contents include a comparison between the small and large beater and considers wet beating, circulation, beater control, fibrages and various parts of beater equipment, such as roll bars, bedplates, angle of bars, weight of rolls and other important details essential for efficient beater operations.

Delaware Valley TAPPI To Meet

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will hold its next regular monthly meeting at the Engineers Club, Philadelphia, Pa., on Friday, December 6 at 6:30 P.M.

Three sound films will be shown: "The Story of Neoprene" and "A New World Through Chemistry" by E. I. du Pont de Nemours & Co.; and a film on the manufacture of sulphate pulp and paper at the Panama City plant of the Southern Kraft Corporation.

For further information and reservations, write to J. D. Davis, section secretary, care of Dill & Collins Inc., Philadelphia, Pa.

Paper Board Association Meets

The National Paper Board Association held its annual meeting at the Waldorf-Astoria in New York on November 13-14. The following officers were elected: Charles E. Nelson, president, Mac-Sim-Bar Paper Company, Otsego, Mich.; George E. Dyke, vice-president, Robert Gair Company, New York; executive manager, Frederick G. Becker, Chicago, Ill.; H. S. Adler, secretary-treasurer, Chicago, Ill. and D. A. Sealey, New York, secretary Eastern Division.

Col. E. W. Ellerson, the retiring president, was absent through illness and Alan G. Goldsmith presented the executive report. The report emphasized the necessity of unified support in view of the grave international situation. Mr. Goldsmith also paid tribute to the services rendered by Finley F. Bell, staff consultant on labor problems and to the constructive quality of the statistical service developed within the association. He also discussed freight classifications and referred to the work of the defense committee of the association, headed by W. J. Alford, Jr. of the Continental Paper Company.

Directors elected by the various groups were as follows:

Eastern Container Board—George E. Dyke, Robert Gair Co.; Alan G. Goldsmith, The Mead Corp.; D. F. Lawless, Lawless Bros. Paper Mills.

Western Container Board—Marcus B. Hall, American Box Board Co.; Walter P. Paepcke, Container Corp. of America; P. A. Schilling, Waldorf Paper Products Company.

Southern Container Board—Alexander Calder, Union Bag & Paper Corp.; R. J. Cullen, Southern Kraft Corp.; H. W. Ellerson, The Chesapeake Corp.; C. W. Gaylord, Gaylord Container Corp.; Fred E. Hummel, Hummel-Ross Fibre Corp.; S. M. Phelan, Jr., West Virginia Pulp & Paper Company.

Eastern Boxboard—W. G. Latham, Fort Orange Paper Co.; George W. Mabee, National Folding Box Co.; W. G. Shortess, Federal Paper Board Company.

Western Boxboard—E. T. Gardner, The Gardner-Richardson Co.; F. M. Lebold, Morris Paper Mills; W. I. Osborne, Jr., Cornell Wood Products Company.

Corrugating Materials—C. D. Altick, Terre Haute Paper Co.; H. F. Cherry, Central Fibre Products Co.; Sidney Froham, The Hinde & Dauch Paper Company.

Pacific Coast—John W. Kieckhefer, Kieckhefer Container Co.; D. H. Patterson, Jr., Fibreboard Products, Inc.; C. J. Schoo, Longview Fibre Company.

Lightweight Chipboard and Bogus—H. J. Finder, Prairie State Paper Mills; J. E. Kieffer, Kieffer Paper Mills; H. D. Schmidt, Schmidt & Ault Paper Company.

Directors At Large Elected by Membership—W. J. Alford, Jr., Continental Paper Co.; Roger L. Main, St. Joe Paper Co.; C. E. Nelson, Mac-Sim-Bar Paper Co.; G. G. Otto, Alton Box Board Company.

To Hold Package Competition

Once again, under the auspices of *Modern Packaging Magazine*, the annual All-America Package Competition takes form to reflect the past year's latest and most ingenious developments in the creation of new packages, new displays and new machinery installations. A special drive is now on to encourage entries in an effort to far exceed the thirty thousand packages that were submitted last year.

Entry is open to all designers, package suppliers, machinery manufacturers, package-using firms and others responsible for the creation of the package or display. There are no restrictions regarding the number of entries that may be submitted. Any package, display or illustration of packaging machinery installation, which has reached the market or has entered production during the calendar year of 1940, is eligible for entry.

The various phases of the packaging industry will be well represented in the twenty broad classifications which have been set up: (1) Folding Cartons (2) Collapsible Tubes (3) Fibre Cans (4) Glass Containers (5) Metal Containers (6) Set-up Paper Boxes (7) Plastic Containers (8) Machinery and Equipment, Class A (9) Machinery and Equipment, Class B (10) Counter or Shelf Displays (11) Floor Displays (12) Window Displays (13) Shipping Containers (14) Family Group (15) Wraps, Bags, Envelopes: Opaque (16) Wraps, Bags, Envelopes: Transparent (17) Labels and Seals (18) Closures (19) Rigid Transparent Containers (Other than glass) (20) Miscellaneous Containers.

The task of selecting three major award winners within each group will be relegated to a fully qualified board of judges. The board is representative of art, industry, merchandising and the consumer, and its decisions therefore will reflect a sound knowledge, as well as a true perspective of the packaging industry.

The following represent the board of judges: Miss Barbara Daly Anderson, director of the *Parents' Magazine* Consumer Bureau; William M. Bristol, Jr., vice-president of Bristol-Myers Company; James M. Mathes, president of J. M. Mathes, Inc.; and George R. Webber, in charge of all package development activities for Standard Brands, Inc.

The current Competition closes on January 6, 1941. Major winners and honorable mentions will be announced in the March, 1941, issue of *Modern Packaging*. Award plaques, which symbolize the highest single achievement in the field of packaging will be officially presented to the winners at a banquet in Chicago to be held some time in April.

Powell River Band Returns

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., November 9, 1940—Returning in triumph from their tour of the Southern states the fifteen kilted members of the Pipe Band of the Powell River Company, leading British Columbia pulp and paper manufacturers, paid a goodwill visit to each of the three daily newspapers in Vancouver.

Earlier in the day they had a triumphal reception at the Vancouver Airport when they were officially congratulated on behalf of the Federal and Provincial Governments and the City of Vancouver for their valuable efforts in promoting goodwill in Texas and adjacent territory during their tour. The members of the band were also guests of honor at a luncheon of the Rotary Club in the Hotel Vancouver. Elmer C. Lee, former member of the staff of the Powell River Company and now an executive of a United States subsidiary organization, was manager of the band during its tour.

Boston Paper Men Hold Fall Meeting

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 18, 1940—One of the most enjoyable affairs of the Boston Paper Trade Association ever held was the fall meeting of the organization at the Exchange Club Wednesday evening. There was an attendance of more than 100 members and guests, with President Robert M. Stone presiding. In the business meeting, three new members were elected: Guy S. Chace, Paterson Parchment Paper Company, Bristol, Pa.; M. S. Gibson, New England representative of the Groveton Paper Company, Groveton, N. H., and A. M. Daniels, L. L. Brown Paper Company, Adams, Mass.

After the dinner, Chester Scott Howland gave an exceedingly interesting talk on "Hunting Big Game of the Sea," accompanied by moving pictures of whaling, including vessels sailing from New Bedford.

Those present included Arthur S. Gay, John Munro, C. W. Fields, N. W. Newton, C. W. Harvey, Harold A. Allen, C. W. Townsend, John H. Calligan, E. T. Simpson, D. P. Abercrombie, Jr., R. O. Neill, C. W. Nelson, Ray Wight, R. H. Welsh, F. D. Hatch, Frank H. Winter, E. A. Crowell, M. S. Gibson, E. J. Dowd, Carl Knutson, F. H. Masselink, William S. Collins, Guy S. Chace, Wm. C. Ross, Edgar B. Hay, C. E. Rice, Jas. J. Dwyer, Bruce Gardiner, W. Gardner Very, J. F. Ingalls, Joseph J. Lewis, John J. Barry, E. C. Calkin, Paul B. Fraser, Lem C. Bills, Gil Singleton, Joseph D. Starr, Jr., R. J. Allen, Fred Herbolzeimer, John Kelley, C. Frederic Wellington, W. E. Doble, E. L. Wood, Fred B. Korbel, W. N. Stetson, Jr., M. A. Park, V. R. Walden, K. L. Moses, J. H. Sweet, R. L. Day, O. T. Bracken, Earl S. Clark, J. J. O'Brien, W. P. Simonds, H. R. Woodward, H. A. Lindenberg, J. L. Hobson, Peter Talbot, Harold Hinckley, J. E. A. Hussey, S. W. Bartlett, Charles S. Proctor, John W. Vivian, W. E. Porter, Jr., Norman Kimball, Fred E. May, Sheldon E. Collin, H. C. Fowler, Roger B. Vickery, F. Bendel Tracy, Jesse G. Swift, Ernest Beals, J. Gilbert Swift, Jr., Arthur Middleton, D. Cheever, Jr., Howard E. Chase, Sumner B. Andrew, H. M. Donahue, E. H. Little, D. H. Maynard, E. H. Sussenguth, N. S. Clark, L. B. Mathers, Eric D. Wallin, F. G. Lockwood, V. E. Halloran, E. P. Clausmeyer, Wm. H. Walpole, Sr., John E. Roach, R. C. Adams, Paul M. Beach, E. E. Ketcham, J. R. Cryan, Geo. F. Morrison, Herman Miller, Wm. J. McLellan, K. H. Ways, J. W. Eginton, Ralph B. Case, T. K. Davis, Irving N. Esleeck, R. M. Stone, Chester Scott Howland, Jack Bresole, John H. Brewer, and T. Charles Casey.

Officers of the association are: President, Robert M. Stone; 1st vice-president, Irving N. Esleeck; 2nd vice president and acting secretary, John H. Brewer; treasurer, T. Charles Casey.

Dr. Bartow Joins Johns-Manville

Dr. Edward Bartow, who has been granted a year's leave of absence as emeritus professor of the University of Iowa department of Chemistry and Chemical Engineering has joined the research laboratories of Johns-Manville Corporation at Manville, N. J., as chemical consultant, it is announced by L. R. Hoff, vice president of Johns-Manville in charge of sales and research.

Dr. Bartow, former president of the American Chemical Society and president in 1921 of the American Water Works Association, will act as Research Consultant with Johns-Manville in connection with chemical problems involved in all phases of the company's research activities, Mr. Hoff said.

Dr. Bartow's many years of experience in the chemical and chemical engineering field have been wide and varied. Born in Glenham, N. Y., he received his Bachelor of Arts Degree from Williams College in 1892 and his Doctor of Philosophy Degree from the University of Gottingen in 1895. He served on the faculties of Williams College, the University of Kansas, the University of Illinois and the State University of Iowa. During the last World War, Dr. Bartow saw duty in France as a Lieutenant Colonel in the Sanitary Corps of the U. S. A. from 1917 to 1919 and was awarded the Medaille d' Honneur.

In addition to his membership in the American Chemical Society, Dr. Bartow holds membership in various chemical and engineering societies and fraternities in the United States, Great Britain, and France and has made frequent trips to Europe as delegate to chemical and industrial conventions.

Dr. Bartow is author of "Reports on Chemical and Biological Survey of Waters of Illinois", a series published from 1906 to 1920. He has also written many papers on water purification, sewage disposal and treatment of organic trade wastes and has been an assistant editor of Chemical Abstracts since 1911.

J. B. Gaskins Goes With Columbia Alkali

W. I. Galliher, director of sales of the Columbia Alkali Corporation, division of Pittsburgh Plate Glass Company, recently announced that James B. Gaskins will become associated with the corporation November 18, 1940, as a member of the Technical Service Department.

Mr. Gaskins was born at Sunny Bank, Virginia, February 6, 1908. He obtained his B.S. degree in Chemistry at William and Mary College in 1928; was a member of Pi Kappa Alpha (Social Fraternity), Kappa Phi Kappa (Educational Honorary Fraternity).

Mr. Gaskins has had a varied chemical business experience, having been associated with the following well-known companies: Meigs, Basset and Slaughter (Consulting Chemists); Central Scientific Co. as sales representative, located at Washington, D. C.; J. T. Baker Chemical Co.—Sales Representative; Commercial Solvents Corporation—Manager, Buffalo, N. Y., Branch Office; Will Corporation—Sales Representative.

Carpenter Paper Co. To Build

OKLAHOMA CITY, Okla., November 18, 1940—Application for a permit to build a $100,000 structure at 918 Olie Drive for the Carpenter Paper Company of Oklahoma was filed Thursday with the city by Ellis-Nicholson and Cramer, contractors.

The building will be occupied by the paper firm now located at 27 East Grand avenue. It is to be a brick and steel one-story building with basement, 248 by 140 feet. Additions to the building not included in the original plans will bring the cost of the structure to $125,000. Sorey, Hill and Sorey are the architects.

N. E. TAPPI Discusses White Water

The New England Section of the Technical Association of the Pulp and Paper Industry met at the Roger Smith Hotel, Holyoke, Mass., Friday evening, November 15, 1940. R. H. Doughty of the Fitchburg Paper Company presided as chairman.

Chairman Doughty announced that the next meeting will be held in Holyoke on Friday, December 13. J. P. Strasser of the Stein, Hall Manufacturing Company, Chicago, will present a paper on "Starches." He also requested the following nominating committee to propose a slate of candidates for office: Lester Crouse, J. P. Kennedy and Herman Otto.

A sound motion picture "More Than Meets the Eye" was presented by the Interchemical Corporation.

The speaker of the evening was P. M. Loddengaard of Bulkley, Dunton & Company who talked on the care, reuse and disposal of white water. In the discussion Messrs. De Cew, Young, Hutchinson, Martin, Fowler, Berg and Wennberg participated.

Those present included: A. M. Altieri, P. W. Ayers, P. S. Barnhart, J. C. Barthel, N. I. Bearse, John M. Behnke, Herman Berg, R. G. Betts, Thomas E. Boyne, H. E. Brakewood, Sid Brown, D. C. Burdick, William J. Burke, Jack Carey, L. W. Crouse, C. W. Damon, Charles Davidson, J. A. DeCew, Arthur Dionne, J. Edward Doyle, R. F. Driscoll, H. M. Federhen, Thomas Flaherty, Mr. and Mrs. Paul B. Fowler, Fred Gibbs, H. W. Griffin, Walter Hendrick, Parker B. Holden, W. J. Hoxie, T. W. Hungerford, Jr., O. F. Hutchinson, Andrew Jackson, Lena E. Kelley, John P. Kennedy, P. J. Kennedy, Jr., Helen U. Kiely, John F. O'Leary, John T. Leecock, James Lister, E. M. Loveland, Fred Lovenberg, R. G. Macdonald, James Macguiness, Ronald Malloch, G. E. Mangsen, Robert Mannheim, R. B. Martin, Jack McKela, H. L. Mellen, Ollie Messner, C. C. Mockridge, James Moriarty, E. O. Nash, A. W. Neubauer, F. Norman, W. A. Nivling, Herman Otto, R. A. Packard, E. A. Radant, C. L. Reece, Peter S. Sinclair, E. P. Slocum, L. N. Smith, James Spadaro, Thomas L. Stirling, John Studeny, Joseph J. Thomas, Vincent Tranfaglia, L. B. Tucker, R. Tutt, Jr., George R. Wallace, 3rd, B. D. Warren, E. N. Wennberg, C. A. Weymouth, Mr. and Mrs. Wm. R. Willets, and L. M. Yoerg.

Paper Men Elect Credit Committee

Credit executives of the fine paper industry have selected the following committee who will have charge of the Industry Meeting and program in conjunction with the annual Credit Congress of the National Association of Credit Men at New Orleans in May, 1941: H. C. Steward, The Whitaker Paper Company, Cincinnati, Ohio, chairman; B. E. McJilton, Butler Paper Company, St. Louis, Mo., vice-chairman; Paul Anderson, Zellerbach Paper Company, San Francisco, Cal., and Alex Turnbull, Butler Paper Company, Denver, Colo.; W. D. Paterson, The Weissinger Paper Company, Lansing, Mich., and A. R. Martin, Jr., Bradner Smith and Company, Chicago, Ill.

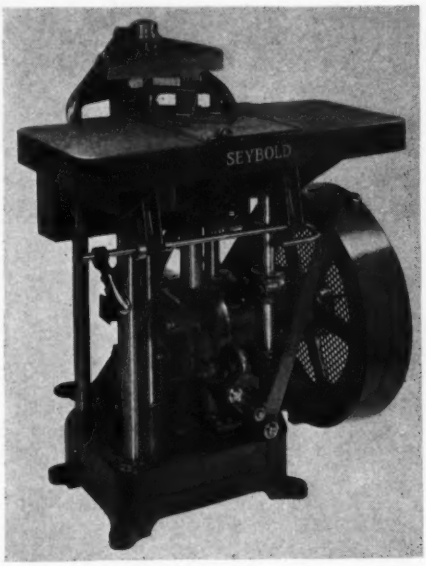
Mr. Steward and committee are the official representatives of the Fine Paper Industry in the National Association of Credit Men. Suggestions are invited on topics which might advantageously be discussed at the coming Credit Congress as well as regarding any other credit problems on which committee action would be helpful.

New Napkin Scalloping Cutter

Just announced by the Harris-Seybold-Potter Company, Dayton, Ohio, is its model 5SA Napkin scalloper shown in the accompanying illustration.

This machine is designed to scallop the edges of 10 inch per square cocktail napkins, quarter folded to 5 inches square. After scalloping, the napkins measure 9½ inches square. Standard knives cut scallops of about ¼ inch radius but other types of scallop may be had upon specification.

A pile of 50 to 60 napkins is cut at each stroke, as fast as an operator can jog the pile into alignment,



NEW HARRIS-SEYBOLD-POTTER CUTTER

load the machine, and trip the mechanism. The Seybold Auto-clamp holds the pile securely during cutting by clamping only the edges. The pile comes from the machine fluffy and soft, and embossed stock is not compressed.

Napkins are loaded onto a moving gauge which is moved forward under the clamp, being accurately positioned by stop screws. After cutting, the pile is withdrawn with the gauge, eliminating the necessity of reaching under the clamp. Two hand throw-in is provided as a safety feature.

The machine is so simple that a completely inexperienced operator can become proficient in operation with very little instruction.

J. R. Griffin Addresses Rotary Club

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., November 11, 1940—James R. Griffin, sales manager for the Scutan plant of the Union Bag and Paper Company, discussed the growth of this division at a meeting of the local Rotary Club this week. He stated that the business was originally developed in New York when paper umbrellas were made and sold through vending machines. One machine was brought from Brooklyn where the business was conducted after it was moved from the metropolis and at the present time seven machines are in operation. The plant has developed rapidly until now about 60,000 square feet of space is utilized.

Obituary

David F. Phillips

David Foster Phillips, 74, for the past 29 years secretary of the Brownville Board Company, Watertown, N. Y., died at his home, 1207 State St., of a heart attack on November 10.

Mr. Phillips was born in Antwerp October 12, 1866, son of Mr. and Mrs. William D. Phillips, and was educated in Ives seminary, Antwerp, and Eastman Business school in Poughkeepsie.

He was first employed in the hardware store of Cornwell Brothers of Alexandria Bay, and then in 1894 became assistant manager of the Newton Falls Paper company, a position he held until 1911. In 1911 he became affiliated with Brownville Board company and shortly after was named secretary of the firm.

He married Addie M. Bullis of Plessis in that town April 13, 1892.

Surviving are a son, City Judge Crandall F. Phillips, a daughter, Miss Rhetta A. Phillips, two grandchildren, one sister, and two brothers.

Services were held at the home and burial was in Brookside cemetery.

Thanksgiving

"My heart," says Uncle Jake, of the Kalamazoo Vegetable Parchment Company, "has been strangely warmed as I began to enumerate the many, many things for which I am duly grateful to the Creator of us all. Here is a partial list:—

"For the Atlantic and Pacific Oceans which still are a good defense.

"For the ability of the American people to unite in essentials, and for their freedom in thinking and talking way late into the night about non-essentials.

"For the good sense of the American business man to change with this changing world.

"For a sense of humor and ability to chuckle after listening to the speeches in the last campaign, and thankful it's over with.

"That we have not been embittered and made revengeful by the failures and the disappointments, kicks, jars, eggs, tomatoes and ridicule; but still can love and laugh.

"For the peace-loving spirit and for the generosity of the American people to the oppressed of the world.

"For the Pilgrim Fathers who started this Thanksgiving idea. This spirit helped shape America and made her great.

"Last, but not least, we are grateful for the privilege of serving you with our make of paper. Also for the unquenchable desire to grow in your grace and become better every day in every way."

N. H. Rhoades Goes With Seymour Paper

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 18, 1940—Norman H. Rhoades, formerly New England representative of the Waterfalls Paper Mills with headquarters in Boston, has taken a position as salesman in New York City for the Seymour Paper Company. Stanley Scott, who has been at the plant of the Waterfalls Paper Mills in Mechanic Falls, Me., has been covering the New England territory for a few weeks and has been favorably received by the trade.

Paper Inventories Gain in September

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 20, 1940—Value of paper and allied manufacturers' inventories in September was 109 compared with 107.1 in August and 91.2 in September of last year taking December 31, 1938 at 100, according to the Monthly Industry Survey of the Department of Commerce.

Index of paper and allied products manufacturers' shipments for September was 138 compared with 129 in August and 126 in September of last year taking January 1939 at 100.

A strong upsurge in new business carried the Department of Commerce new orders index to a 1940 high in September. Although manufacturers' shipments were the largest for the two-year period covered by the Survey, the flow of incoming business during the month was sufficient to raise unfilled order backlogs by 18 per cent. This was the sharpest rise recorded in unfilled orders during any month this year.

The volume of new orders for all industries in September was 25 per cent larger than the high August total, and approximately equal to the peak of the buying wave last Autumn. The durable goods industries with an increase of 30 per cent over August set the pace, but a better than 20 per cent rise in incoming business in the nondurable goods lines reflected the general character of the advance.

Shipments in September rose abruptly, increasing 17 per cent over August. The sharp rise from August resulted partly from factory shipments of automobiles, which more than doubled as production of new models was rapidly stepped up. Even without the automobile industry, however, shipments rose 12 per cent. This gain was about equally distributed between the durable and nondurable goods industries. Deliveries of durable goods exceeded the volume of the peak month of last fall for the first time this year, while the nondurable lines equalled the high point of last September.

Manufacturers' inventories showed little evidence of general accumulation in September. Although the value of stocks increased by a little more than one per cent during the month, the major part of this rise may be accounted for by a seasonal expansion of stocks in the automotive industry. A moderate rise in the other durable goods industries was in large part offset by a decline in the nondurable goods field.

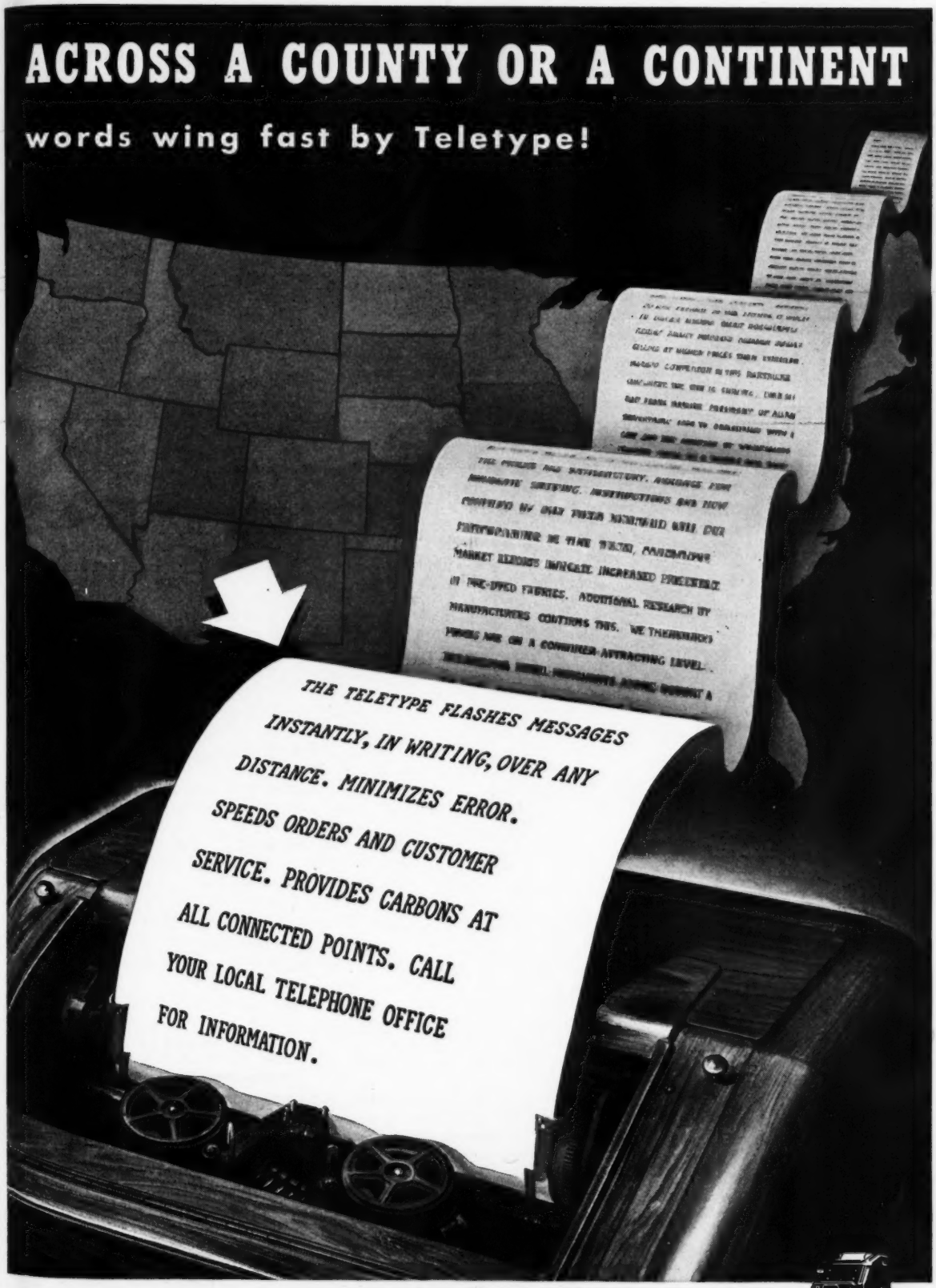
Albany Corrugated Container Expands

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., November 18, 1940—The Albany Corrugated Container Corp. is planning an expansion of its production here, according to statement. Claude R. Friesner, formerly general manager of the General Container Corporation, of Cleveland and one of the original organizers of the concern several years ago, has come to this city as vice president of the subsidiary unit here while Douglas M. Bell will be retained as president. Mr. Friesner, a native of Ohio, has been connected with the box industry for many years and is expected to prove of valuable aid in connecting the affairs of the local branch. It was announced that the company will enlarge its floor space for manufacturing purposes in connection with its expansion program and it is probable that the working force will be enlarged.

ACROSS A COUNTY OR A CONTINENT

words wing fast by Teletype!



BELL SYSTEM TELETYPEWRITER SERVICE

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending November 20, 1940

	High	Low	Last
A. P. W.	2¼	2¼	2¼
Armstrong Cork Co.	32½	31⅛	31½
Celotex Corp.	7⅞	7¼	7½
Celotex Corp., pf.	63	63	63
Certain-Teed Products Corp.	5⅛	5	5¼
Certain-Teed Products Corp., pf.	37	33	35⅛
Champion Paper & Fibre Co.	23⅜	23¼	23⅜
Champion Paper & Fibre Co., pf.	105	104¼	104¼
Congoleum-Nairn Co.	19	18⅜	18⅜
Container Corp. of America	17¼	15⅝	15⅝
Continental-Diamond Fibre Co.	8¼	7¼	7¼
Crown-Zellerbach Co.	17	15½	15⅝
Crown-Zellerbach Co., pf.	90½	90	90
Flintkote Co.	17½	16½	16½
Robert Gair	3⅜	2⅜	2⅜
Robert Gair, pf.	17¼	16	16
International Paper & Power	17⅞	15¾	16½
International Paper & Power, pf.	69⅞	65⅜	67½
Johns-Manville Corp.	67	63½	63½
Johns-Manville Corp., pf.	128½	126	126
Kimberly Clark Corp.	40¼	37½	37½
MacAndrews & Forbes	31	30¼	30¼
MacAndrews & Forbes, pf.	132	131	132
Masonite Corp.	29⅞	28¼	28½
Mead Corp.	11	9½	9½
Mead Corp., pf.	....	....	....
Paraffine Companies, Inc.	38¼	37⅜	37⅜
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	19¼	17⅛	17⅛
Rayonier, Inc., pf.	28¼	26½	26½
Ruberoid Co.	17⅞	16½	16¾
Scott Paper Co.	41¾	40	40
Scott Paper Co., pf.	108½	108½	108½
Sutherland Paper Co.	23½	23	23
Union Bag & Paper Corp.	14⅛	12¾	12¾
United Paperboard Co.	4¾	4¼	4¼
U. S. Gypsum Co.	74	69	69⅛
U. S. Gypsum Co., pf.	176	175	175

New York Curb Exchange

High, Low and Last for Week Ending November 20, 1940

	High	Low	Last
American Box Board Co.	5	4⅜	4¾
Brown Co., pf.	21	19½	19½
Great Northern Paper	45	44¼	44½
Hummel-Ross Fibre Corp.	7⅜	6⅝	6⅞
National Container Corp.	12¾	11¾	11¾
St. Regis Paper Co.	3⅛	2¾	2¾
St. Regis Paper Co., pf.	78	75	75½
Taggart Corp.	4½	4	4

M. & O. Makes Good Report

The net sales of the Minnesota & Ontario Paper Company and subsidiaries totaled $13,256,506 in the first nine months this year, a gain of $2,544,844 over 1939 to October 1, the twenty-fifth report of trustees to the United States district court showed yesterday. The company has headquarters in Minneapolis and plants at International Falls, Fort Frances and Kenora.

Net profits in the 1940 period were $1,849,676 against $608,245 last year. Mill operations were practically at capacity through July and August. In September, however, operations were curtailed considerably at the International Falls and Fort Frances mills because of shortage of waterpower resulting from deficiencies in snowfall last winter.

The trustees reported reorganization plans are progressing. On August 14 the court approved their amended reorganization proposal, dated July 14 and ordered it submitted to creditors and stockholders by September 10. Acceptances by secured and unsecured creditors were to be filed by October 25 and more than the required two-thirds of each group had accepted on that date.

Further steps will include decision on the form of income mortgage indenture, preparation of certificate of incorporation and by-laws and drafting a petition for confirmation of the plan. This work is expected to require about 30 days. The court then will set a date for hearing, after notice of three or four weeks for all affected interests. The hearing probably will take place early in January.

Mead Corp. Nets $983,197

The Mead Corporation and subsidiaries for forty weeks to October 5: reports a net profit of $983,197, equal, after preferred dividend requirements, to $1.02 a share on common stock, against $246,517, or $3.04 a share, on combined $6 preferred and $5.50 preferred stocks, for forty weeks to October 7, 1939. Sixteen weeks to October 5: net profit, $301,665, or 26 cents a common share, compared with $89,297, or $1.10 a share, on combined preferred stocks for sixteen weeks to October 7, 1939.

A 25-cent dividend on the common shares of the Mead Corporation was authorized. This is the first payment since 50 cents was disbursed on December 20, 1937.

Johns-Manville Calls Preferred

Directors of the Johns-Manville Corporation have voted to select by lot on December 4 and redeem on January 1 at $120 a share and all dividends 17,500 shares of the corporation's 7 per cent preferred stock.

Last January 15 the corporation redeemed 7,500 shares. The latest redemption when effected will reduce the corporation's preferred stock outstanding to 50,000 shares. In connection with last January's redemption Lewis H. Brown, president, said that "the action of the directors is not based upon a definite future plan but is simply an indication of the policy of the board to redeem the preferred stock from time to time whenever financial conditions and general economic conditions indicate, in their judgment, that such action is desirable for the company."

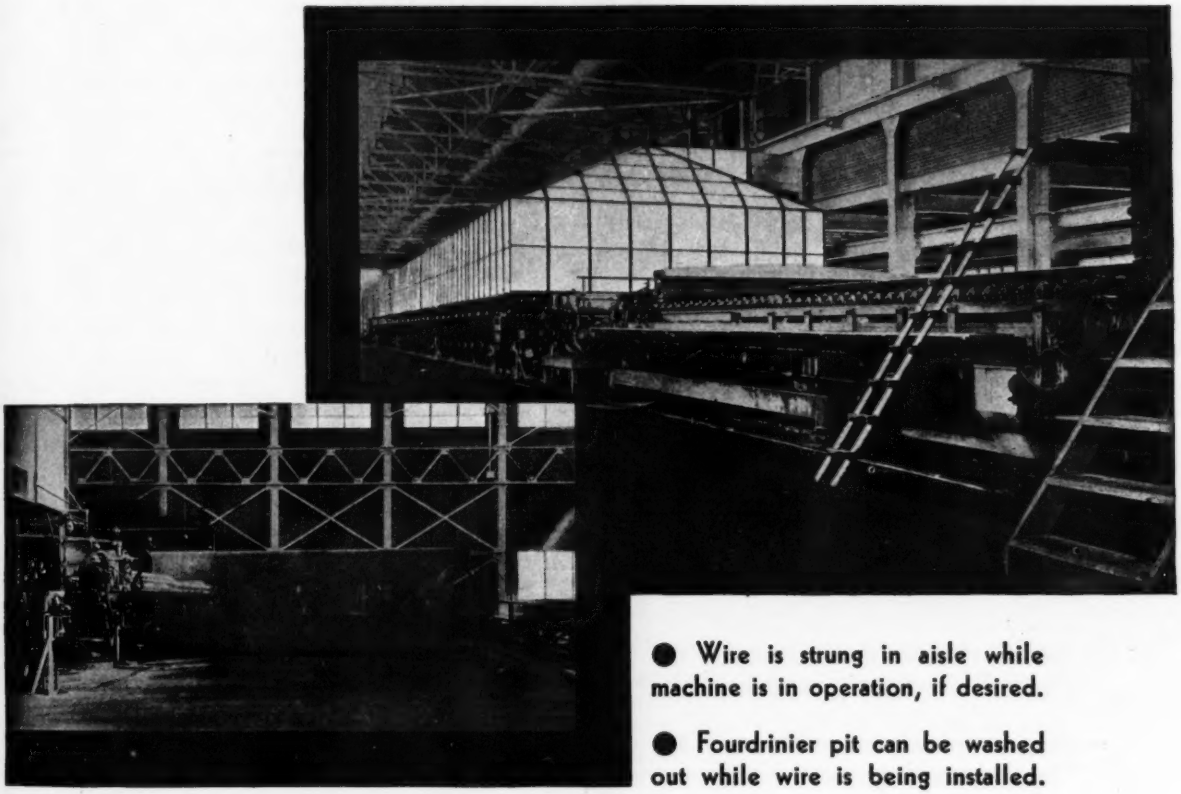
Johns-Manville Pays $1.25

The Johns-Manville Corporation this week voted a distribution of $1.25 a share on the common stock, payable December 24 to stockholders of record December 10. On September 24 a disbursement of 75 cents was made. The current payment will bring total dividends for the year to $2.75 a share, the same as in 1939.

Certain-Teed Earns $451,143

The Certain-Teed Products Corporation and wholly owned subsidiaries for the nine months to September 30: reports a net profit after depletion, interest and $12,856 loss on investment and notes, of $451,143. Net is equal, after preferred dividend requirements, to 19 cents a share on the common stock. Preferred dividend accumulations amounted to $21 a share on September 30. Net profit for the nine-month period last year was $348,592, or 3 cents a common share. Results do not include earnings of

THE BELOIT *Removable Fourdrinier*



● Wire is strung in aisle while machine is in operation, if desired.

● Fourdrinier pit can be washed out while wire is being installed.

● Wire bundle is taken from shipping box and mounted directly in carriage—no chucks to apply—no further handling as bundle is unreeled as carriage moves along to form wire loop.

● All wire poles are mounted in carriage before loop is formed. Inside poles are inserted inside the wire.

● Safest — most convenient — quickest method of installing Fourdrinier wire.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT, WIS. U.S.A. **IS THE MODERN WAY**

Sloane-Blabon Corporation for the 1940 period, which amounted to $294,206 after taxes and charges, and compared with $315,426 earned in the 1939 period.

West Virginia Declares Dividend

The directors of the West Virginia Pulp and Paper Company have ordered a dividend of 40 cents to holders of the common stock. Excluding this dividend, which is payable January 2 next year, 1940 disbursements amount to $1 a share compared with 20 cents distributed in 1939.

I. P. Reports $5,315,118 for Quarter

Richard J. Cullen, president, in submitting the statement of consolidated profit and loss of International Paper and Power Company and subsidiary companies for the third quarter and first nine months of 1940 and for the corresponding periods of 1939 says:

"After full provision for income and excess profits taxes for the third quarter of 1940 under the law as finally enacted, consolidated net profit for the quarter amounted to $3,937,653. This figure does not include a credit of $1,377,465 representing excess provisions made for taxes in the first six months of 1940 when a different law was under consideration. Of the special reserve of $2,000,000 established during the second quarter of 1940 in anticipation of passage of the excess profits tax law, only $622,535 was required to cover liability against earnings for the first six months of 1940 under the law as finally enacted. Including the credit of $1,377,465 the total balance carried to surplus for the third quarter amounted to $5,315,118. Net profit for the nine months ended September 30, 1940 totalled $12,214,551 after full provisions for income and excess profits taxes for the period."

Statement of consolidated profit and loss follows:

Nunez Estate Appraised at $28,596

[FROM OUR REGULAR CORRESPONDENT]

FELTS MILLS, N. Y., November 18, 1940—Rodolphus W. Nunez, formerly general superintendent of the Sherman Paper Company, who died recently, left an estate amounting to $28,596.18, according to an appraisal just completed by the county authorities. The net estate amounts to $26,830.03 after total deductions of $1,766.15 comprising funeral and administration expenses and $68.60 in debts. Making up the gross estate are $15,307.41 securities, $7,114.43 bank accounts, $5,974.34 joint bank accounts held with his daughter, and $200 miscellaneous property. His security holdings include shares of American Telephone Company, St. Regis Paper Company, Northern New York Utilities, Southern Railway, American Smelting and Refining Company, Skenandoa Rayon Company, and bonds. In the distribution of the net estate his daughter will receive the amount of the joint bank account and $5,213 besides while two sons will also share in similar bequests, a son Basco E. Nunez, of Nashua, N. H., is executor of the estate.

Nashua Nets $4.78 Per Share

The Nashua Gummed and Coated Paper Company reports net income of $220,237 for the nine months ended September 30, equal to $4.78 a share on the common stock. For the first nine months of 1939, net income was $118,659, equal to $2.58 per share.

United Paperboard Earns $27,707

The United Paperboard Company, and subsidiaries—for the quarter to August 31; reports a net profit of $27,707, contrasted to net loss of $42,598 last year; net sales, $825,797, against $476,575.

STATEMENT OF CONSOLIDATED PROFIT AND LOSS

	Three Months Ended Sept. 30, 1940	Three Months Ended Sept. 30, 1939	Nine Months Ended Sept. 30, 1940	Nine Months Ended Sept. 30, 1939
SALES AND OTHER INCOME:				
Gross sales, less returns, allowances and discounts	$42,223,316.33	$29,133,736.48	$119,429,905.96	$81,241,869.47
Other income—net	723,650.33	46,007.63	1,706,233.40	627,953.07
	$42,946,966.56	$29,179,744.11	$121,136,139.36	$81,869,822.54
COST AND EXPENSES:				
Cost of sales:				
Pulpwood, labor, materials, etc.	$21,337,751.50	$18,488,801.03	$ 64,216,803.42	$52,033,952.03
Maintenance and repairs	2,574,754.36	1,625,732.97	6,630,796.52	4,539,053.95
Taxes (other than income taxes)	814,921.76	707,079.43	2,345,848.98	2,104,471.18
Outward freight and delivery expenses	5,966,993.26	3,796,923.10	15,512,595.10	10,584,432.78
Selling, general and administrative expenses	1,694,272.04	1,402,545.61	4,819,630.14	4,261,184.59
Provision for doubtful accounts	151,565.97	153,057.22	454,537.70	459,534.83
	32,540,258.89	26,174,139.36	93,980,211.86	73,982,629.36
	$10,406,707.67	$3,005,604.75	$ 27,155,927.50	$ 7,887,193.18
DEDUCTIONS:				
Interest on funded debt	$ 733,579.16	$ 797,167.25	$ 2,285,079.55	$ 2,512,468.07
Interest on other debt	1,918.57	1,658.38	3,470.20	2,266.13
Amortization of debt discount and expense	87,616.74	93,436.77	263,492.06	280,312.65
Depreciation and obsolescence	1,801,609.94	1,170,190.70	4,189,116.74	3,518,075.06
Depletion	250,759.91	208,613.65	693,163.40	581,601.14
Provision for income and excess profits taxes	3,578,626.07	82,056.60	7,461,046.53	214,603.08
Dividends accrued but not being currently paid on preferred stocks of subsidiaries	14,943.75	17,348.00	46,007.25	52,566.00
	6,469,054.14	2,370,471.35	14,941,375.73	7,161,892.13
NET PROFIT BEFORE ADJUSTMENT OF RESERVE FOR ADDITIONAL TAXES	$ 3,937,653.53	$ 635,133.40	$ 12,214,551.77	$ 725,301.05
Add: Excess provision for taxes during six months ended June 30, 1940	1,377,464.91	—	—	—
NET PROFIT	$ 5,315,118.44	$ 635,133.40	$ 12,214,551.77	$ 725,301.05

In the above consolidated profit and loss statements both sales and cost and expenses of foreign subsidiaries are stated on the basis of $4.43 for the pound sterling and at $1.00 for the Canadian dollar and in accordance with past practice, the companies have reflected in current operations all profits and losses on actual exchange transactions.

At September 30, 1940, the undeclared cumulative dividends on the outstanding Cumulative Convertible 5% Preferred Stock amounted to $12.50 per share or a total of $11,574,187.50.

The above statements are subject to final adjustment at December 31st (end of fiscal year).

CONSTRUCTION NEWS

Cleveland, Ohio—The Hinde & Dauch Paper Company, Sandusky, Ohio, manufacturer of corrugated boxes and containers, has preliminary plans under way for new addition to factory branch, storage and distributing plant at 2110 West 110th street, Cleveland, to consist of a one or two-story structure (still to be determined), about 150 x 300 feet. Cost is reported over $75,000, including equipment. H. C. Robinson is manager of Cleveland branch.

Chicago, Ill.—The Acme Paper Box Company, Inc., 2427 West 14th street, and Acme Carton Company, Inc., same address, affiliated organizations, manufacturers of paper boxes and containers, have awarded general contract to the All Building Construction Company, 179 West Washington street, for construction of a new one-story and basement addition to recently acquired plant at State and Sixtieth street, to be about 75 x 400 feet, reported to cost in excess of $85,000, with equipment. Erection is scheduled to proceed at once. As previously noted in these columns, company has purchased industrial property at location noted, comprising a one and two-story building and adjoining tract of land, the latter now to be occupied with new structure. Company has been making improvements in existing building and will soon transfer operations to the new location, concentrating production there in the future. M. L. Bernstein is president.

Chicago, Ill.—The American Decalcomania Company, Inc., 4326 Fifth avenue, manufacturer of paper transfers, processed paper stocks, etc., has completed plans for new addition to plant, to be one-story 65 x 125 feet, reported to cost over $60,000, with equipment. Facilities will be provided for considerable increased capacity. Bids have been asked for general erection and award is scheduled to be made soon. L. R. Soloman & Associates, Inc., 185 North Wabash avenue, are architects.

St. Louis, Mo.—The Gereke-Allen Carton Company, 1701 Chouteau avenue, manufacturer of paper boxes and containers, paraffined boxes, etc., has leased a building at 5101 Penrose avenue, and will remodel and equip for expansion. Possession will be taken at once and work placed under way at early date.

Port Edwards, Wis.—The Nekoosa-Edwards Paper Company, Inc., manufacturer of writing and other paper stocks, has plans for further expansion in mill, following completion of one-story addition, 42 x 52 feet, recently referred to in these columns. The new structure will be one-story and will be used for an addition to paper machine room, Building No. 7, to provide for considerable increase in output. It will be of steel frame type and bids are being taken for the structural steel requirements, totaling about 120 tons. Work is scheduled to begin soon. No estimate of cost has been announced.

Chicago, Ill.—The Traver Corporation, 358 West Ontario street, manufacturer of cellophane products, including containers, etc., has closed negotiations for the purchase of the former local plant of the Pines Winterfront Company, at 404 North Sacramento boulevard. The property covers an area of about 130 x 225 feet, and was secured for a reported consideration of $58,000. New owner will take over at once and will make alterations for early occupancy of different production divisions, including specialty products branch, with installation of converting equipment and other mechanical apparatus. George W. Traver is president.

Wisconsin Rapids, Wis.—The Consolidated Water Power and Paper Company, manufacturer of book, writing and other paper stocks, is completing foundations and will proceed with superstructure at once for proposed new three-story addition to mill, 48 x 260 feet, recently referred to in these columns. It will be used for expansion in finishing department, and will be equipped for large increase in present capacity. Cost is reported over $125,000, with equipment. Erection will be carried out by company forces, and a number of contracts have been awarded for required materials, including structural steel framing, roofing, etc. Thomas Utegaard is company engineer in charge.

Painesville, Ohio—The Industrial Rayon Corporation, West 98th street and Walford avenue, Cleveland, Ohio, is pushing construction of new additions to synthetic fiber mill near Painesville, where large adjoining tract of land recently was acquired. Several new one and multi-story units are in course of erection, to be equipped for an output of about 6,000,000 pounds per annum. Cost is reported over $3,500,000, including machinery. Completion is scheduled for next March, when units will be placed in service at once.

St. Regis Falls, N. Y.—The St. Regis Paper Company, 230 Park avenue, New York, N. Y., manufacturer of writing and other paper stocks, has work in progress on new two-story addition to mill in vicinity of St. Regis Falls, recently referred to in these columns, and proposes to have the structure ready for service at early date. It will be about 54 x 75 feet, reported to cost over $50,000, with equipment. Rouse & Hallenbach, 437 Maple street, Syracuse, N. Y., have the general erection contract. Frederick S. Webster, 1412 Madison street, Syracuse, is architect.

Chicago, Ill.—The Charles Bruning Company, 445 Plymouth court, manufacturer of blue print and white print papers, and kindred processed paper stocks, blue print equipment, etc., has approved plans for new addition to plant at 4700 West Montrose avenue, consisting of a one and two-story structure, reported to cost in excess of $60,000, with equipment. General erection contract has been let to the B-W Construction Company, 307 North Michigan avenue, and work will proceed at once. Victor L. Charn, 820 Tower court, is architect.

Menasha, Wis.—The Central Paper Company, 622 Manitowoc street, paper goods, is completing superstructure for new one-story mill addition, 93 x 132 feet, and will proceed with roofing at once. It is expected to have the building ready for equipment in-

stallation early in 1941. Cost is reported over $60,000, with equipment. As previously noted in these columns, erection contract has been let to the Fluor Brothers Construction Company, 48 Otter street, Oshkosh, Wis., and sub-contracts are being awarded for different branches of work.

Hobart, Tasmania—The Australian Newsprint Mills, Pty., Ltd., Hobart, and Adelaide, South Australia, has construction nearing completion on new newsprint mill in Tasmania, in course of erection for a number of months past, and it is proposed to have initial units ready for production early next year. The plant will consist of several large one and multi-story units, and will be equipped for heavy output. Native timber will be used for pulp wood supply and company has arranged for sawmills and other facilities for this purpose. Plant production will be used by a number of newspapers at Adelaide and other points in Australia, which heretofore have utilized imported newsprint. New mill is reported to represent an investment in excess of $2,500,000.

Sydney, Australia—Papyrus, Pty., Ltd., Burrows road, Sydney, New South Wales, manufacturer of paper goods of various kinds, is expanding operations at mill, following recent completion of a new addition, to be used primarily for the production of laminated papers and other special processed stocks. New machinery will provide for considerable increase in former output. A new laminating machine has been installed, provided with electric-heating equipment for the rollers, with similar-operated heating apparatus for drying the paper stock as it leaves the rollers.

Hamilton, Ohio—The Beckett Paper Company, manufacturer of bond and other writing paper stocks, has approved plans for new addition to mill, consisting of a one-story structure, to be used primarily for storage and distribution. It is reported estimated to cost close to $45,000, with equipment. Contract for building erection has been let to the F. K. Vaughn Building Company, First National Bank Building, Hamilton, and work is scheduled to be placed under way at once.

Chicago, Ill. — The Container Corporation of America, Inc., 111 West Washington street, manufacturer of corrugated paper boxes and containers, is making improvements in local plant at 404 East North Water street, including a new two-story brick sump in basement, 27 x 160 feet, to provide for waste at the mill. General contract for work has been let to H. W. Todd Construction Company, 30 North LaSalle street. No estimate of cost has been announced. F. Seaberg, 1460 West Berwyn street, is architect.

Port Edwards, Wis. — The Nekoosa-Edwards Paper Company, Inc., manufacturer of writing and other paper stocks, has work nearing completion on new one-story addition, 42 x 52 feet, for general service and unit will be equipped at early date. Erection contract has been carried out by Stephen Feith, 2141 Eighth street South, Wisconsin Rapids, Wis. No estimate of cost has been announced. Donn Hougen, 132 East Grand avenue, Wisconsin Rapids, is architect.

Kimberly, Wis.—The Kimberly-Clark Corporation, manufacturer of book, catalog and other paper stocks, has work in progress on alterations and improvements in Building No. 27 at mill, used for general production service, to increase efficiency of unit. Fluor Brothers Construction Company, 48 Otter street, Oshkosh, Wis., is general contractor for structural work, which will be pushed to early completion.

Richmond, Ind.—The Johns-Manville Corporation, 22 East 40th street, New York, N. Y., manufacturer of insulating board, compressed fiber products, etc., has plans under way for expansion and improvements in branch mill at Richmond, including new one-story unit to be used for storage and distributing service, and alterations in existing structure. Entire project is reported to cost about $45,000, with equipment. Work is scheduled to be placed under way soon.

Cumberland, Md. — The Celanese Corporation of America, Inc., 180 Madison avenue, New York, N. Y., manufacturer of cellulose rayon products, has awarded general contract to George F. Hazlewood Company, Cumberland, for proposed new addition to mill at Amcelle, near Cumberland, previously referred to in these columns. It will be three-story and basement, 100 x 400 feet, and will be used primarily for storage and distribution. It is reported to cost about $200,000, with mechanical-handling equipment and other facilities. Erection will be placed under way at once.

New Literature

Rectangular case thermometers and pressure gauges are described in a new catalogue, No. 6706, issued by The Brown Instrument Company, Wayne & Roberts avenues, Philadelphia, Pa. It covers the full line of vapor, gas and mercury actuated and portable thermometers for indicating, recording and controlling processing operations. New features include rectangular cases, powerful flat spiral actuating elements and overload safeguard.

Handling industrial loads is described in a bulletin entitled, "How to save money handling your loads," issued by The Elwell-Parker Electric Company, 4205 St. Clair avenue, Cleveland, Ohio. Seven usual steps common to most industries in handling loads from incoming car, through production, with efficiency and economy are summarized.

Induction motors, squirrel cage type, for two and three-phase alternating current circuits, are described in Bulletin 119, issued by the Reliance Electric and Engineering Company, Ivanhoe road, Cleveland, Ohio. It covers the company's Type AA, all-steel frames 444-6085, merits of stator core, rotors, windings and gives general specifications of these motors.

Centrifugal dredging pumps are described in Bulletin 208-2, issued by the Lawrence Machine and Pump Corporation, 371 Market street, Lawrence, Mass. It describes the company's standard pumps for pumping solids and abrasive mixtures in industrial plants and hydraulic dredging applications. Construction details and specifications are given.

Baffle wall design and construction according to modern practice, is discussed in Bulletin BW-40, available on request from The Engineering Company, 75 West street, New York. It covers the progress made in design and construction of baffle walls for straight and bent tube boilers during the last 25 years. A list of the company's installations in many large paper mills and industrial plants is included.

Indianapolis Fair

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 18, 1940—A fair volume of trade continues in the entire paper field in this area. The state last week had its first seasonal weather and in some lines this appeared to help. The general retail trend in this area continues upward and there is nothing in the picture at the present time that would indicate any abatement of paper demand.

Demand for roofing and building paper continues heavy for this time of the year, but naturally there has been a slight decline with the coming of cooler weather. However, demand is expected to continue until weather conditions halve outside construction. Retailers have fair stocks in their hands and their buying will be cut to a minimum until after inventory at least.

The bag and wrapping paper market took on added impetus during the last week due to the approach of Thanksgiving, which will be celebrated early this year. Retailers, particularly in the food field, are expecting much more business this Thanksgiving than last year and are making their paper and bag purchases accordingly.

Box factories continue to operate at good volume and report a fine demand in most industrials. The demand base has widened consistently during the entire year and sales are higher than they were a year ago. Prices are being firmly held.

Kraft paper demand has shown an increase in the last week or so and is expected to continue good until after Christmas. Prices show no change but are very strong.

The fine paper situation shows little change. Local printing houses are not doing the business they had expected at this time.

Newsprint continues fairly strong. Lineage has picked up in the last week and is expected to continue heavy until the first of the year with the domestic advertisers showing the biggest proportionate increase.

A fair demand is reported for rags, but the waste paper market appeared to be a little sluggish last week. No marked changes were seen in rag market prices.

● There is an Appleton Super-Calender Roll for every paper finish on any calender. The range of density and sizes is unusually complete, including the New Process filling developed to meet the special requirements for machine coated and clay filled papers produced at high speeds. This wide selection provides the close adaptation of the right roll surface to each variation in paper manufacture necessary to produce the finest finish with uniform production and long roll life.

F. L. Carlisle, Jr. Goes To Deferiet Mill

[FROM OUR REGULAR CORRESPONDENT]

DEFERIET, N. Y., November 18, 1940—It was announced here that Floyd L. Carlisle, Jr., of Locust Valley, has become connected with the local branch of the St. Regis Paper Company in a responsible capacity. Mr. Carlisle, who is the son of the utility executive, will be stationed in the research laboratory at the plant. He is a graduate of Choate School and Yale University.

It was stated by officials that earnings for both the Taggart Corporation and the St. Regis Paper Company this year were better than for some time. Business of both concerns this year is very much better than in 1939 and the annual reports will show excellent increases when they are issued. Officials are optimistic over the outlook for 1941 declaring that both concerns have large orders booked which will guarantee steady operations well into next year.

PAPER TRADE JOURNAL
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Henry J. Berger
EDITOR

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COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

FOR BETTER BUSINESS

General industrial activity is now at the highest level in our history. The national income and purchasing power is reported to be at a new high point and yet much confusion, uncertainty and lack of confidence in the future is apparent in business reports. The dynamic European situation has injected much of this confusion into the domestic scene. Part of the hesitancy and lack of confidence is evidently caused by the fear of increased restriction on private enterprise and higher taxes. In any case, uncertainty of the future is an intangible factor or deterring force to the fullest measure of business activity. Although it may seem difficult to view the present complex international situation and our own confused situation with resolute courage, progress must be slow and unsatisfactory to one who walks with faltering steps.

It is encouraging to know that so many major industries and so large a number of productive units within their fields, are pushing ahead in the practical belief that whatever promises desirable today is reasonably certain to bring satisfactory results tomorrow. It is with this laudable resolution based on confidence in American principles of government, in the great national resources of the country and above all, in the ability of Americans to solve any problem created by human maladjustment, that provides the stimulus to always strive to attain a higher mark. It is gratifying to note the constant uptrend of expansion in the paper and pulp industry, particularly the substantial capital reinvested or "plowed back" during the present year for the increase of production and improvements of products added to plants through the installation of new and more modern equipment. Applied science is becoming of more importance in producing better paper at lower cost but the present high and impending higher taxes are more difficult to appraise.

The new excess profits tax, for example, has increased an already heavy tax load on business, but the huge expenditures already appropriated for national defense must be met in large part by taxes. In commenting on the present faulty tax system, Henry J. Heimann, executive secretary of the National Association of Credit Men, declares in that organization's latest review of business conditions, that our tax laws must be placed on a scientific basis. "The problem can be easily stated," Mr. Heimann asserts. "Under the best of circumstances our national debt, after the projected defense program has been completed, will approach 65 or 70 billions of dollars. This necessarily carries with it the problem in future years of servicing that debt, beside the implication of a strained national credit."

In discussing the question of defense program costs, Mr. Heimann states in part: "We must cover a substantial amount of our present expenditures by taxation. The exact amount requires a scientific appraisal for there is a law of diminishing returns in taxation. Our taxation program must be such that the burden falls equally upon all groups in accordance with their ability to pay and the benefits secured. The tax burden cannot be so high as to undermine the incentive to produce and save. One policy that should be given consideration in matters of taxation, in my opinion, is the trusteeing of tax receipts secured from estates. It is my view that a scientific tax law would place all death taxes in a sinking fund. Irrespective of how small it might be, this annually would be applied in its entirety against the retirement of the national debt."

In illustrating this point on trustee estate taxes, Mr. Heimann goes on to say that, "A man of wealth has amassed his fortune, generally, by reason of several conditions: First, we will concede that a large part of his fortune is due to his individual industry, efficiency and ingenuity in his particular line of work. Secondly, and perhaps about as important, an important part is due to the social gains of which he is the beneficiary. He may have had the wisdom to foresee these social trends. His own industry may have contributed substantially. But usually a large part of his wealth has come from the natural growth of the country."

Continuing, Mr. Heimann said, "For example, real estate he owns (although other types of property could be used as well) enhances in value. The owner has been shrewd enough to foresee this but the fact remains, however, that the influx of population, the shifting of business centers and other factors have made this possible. His foresight should, of course, be rewarded during his lifetime and a substantial portion of his capital should be available for distribution as he wishes after his death. If this were not possible there would be small incentive to either production or thrift."

In conclusion, Mr. Heimann states a preferable disposition of estate taxes, as follows: "At the same time a portion of it should go back to the national community by way of estate taxes. That is recognized now. But it would be more logical if the estate tax were ear-marked to liquidate some of the debt, a part of which, at least, has been incurred for social purposes which, in turn, have helped him amass his fortune."

The adjustment of taxes to business is, of course, a difficult one, dependent largely upon the equitable provisions of the levies that may be made in the future. A survey of 400 leading companies shows that aggregate net income is currently about 23 per cent higher on the basis of the same income tax rate as last year. As a result of the new increases in the normal rate to 24 per cent, and the additional excess profits tax, however, the profit rise is reduced to about 5 per cent. With the severe adverse effect of the former excess profits tax in mind, it is to be hoped that our legislators will remember that any factors which reduce the possibility of adequate profits for private business are almost certain to restrict expansion of industrial activity and a recession is probable during the following year. If the previous error be not committed again, one of the intangible deterrents in business, fear, will be removed and industry and trade will be free to steadily expand in a normal manner.

Sutherland To Build Addition

KALAMAZOO, Mich., November 15, 1940—The Sutherland Paper Company has announced plans for the immediate erection of a $50,000 addition to its plant to house its paper milk bottle unit. It will be one story steel and concrete, 375 feet long and 70 feet wide on the New York Central siding. The company recently bought the Purity Vessels Company of Baltimore and much of the equipment from that plant will be brought to the new building and installed. The interior of the new plant will be lined with cream colored tile to meet the strict sanitary requirements of the industry. Approximately 40 more employees will be added to the payroll as a result of this expansion. An order for 20 carloads of paper milk bottles to be delivered during the next six months has already been accepted.

Fulton Paper Co. Leases Building

[FROM OUR REGULAR CORRESPONDENT]

ATLANTA, Ga., November 18, 1940—A five year lease, calling for a rental aggregating $18,000, on property at 211-19 Spring street, S. W., has been signed by the Fulton Paper Company, it was announced last week by Sam Goldberg, of the Allan-Goldberg Realty Company. Lessor is the W. L. Traynham Estate.

The building with 2½ stories, contains about 32,000 square feet, and will nearly double the size of the lessee's present quarters at 157 Alabama street, S. W. The structure, to be used for offices and warehouse, will be extensively remodeled for occupancy by February 1.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	83.9%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.3%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	91.8%	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	93.8%	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	87.1%	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	87.2%	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	83.3%	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	88.3%	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 45 weeks	87.9%	83.6%	71.7%	84.6%	80.5%	70.2%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
October 5	87.9%	October 7	93.0%
October 12	88.9%	October 14	96.9%
October 19	87.4%	October 21	98.6%
October 26	88.6%	October 28	97.9%
November 2	88.7%	November 4	98.0%
*November 9	89.0%	November 11	98.1%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Oct. 5, 1940	Oct. 12, 1940	Oct. 19, 1940	Oct. 26, 1940	Nov. 2, 1940	Nov. 9, 1940
0% to 50%	50	51	54	44	43	41
51% to 100%	244	241	237	245	239	209
Total Mills Reporting	294	292	291	289	282	250

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	76%	79%	72%

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	74%	72%	79%	....	....	....

Week end. Oct. 5, 1940—78%
Week end. Oct. 12, 1940—79%
Week end. Oct. 19, 1940—78%
Week end. Oct. 26, 1940—80%
Week end. Nov. 2, 1940—80%
Week end. Nov. 9, 1940—78%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.
* Preliminary figure.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 20, 1940—During the week ended November 2, the Government purchased $11,213,286.45 worth of paper and allied products under the Walsh-Healey Act as follows: $21,274.70 worth of toilet paper for the War Department, QMC, from Ashland Paper Mills, Inc., Brooklyn, N. Y.; $10,614.36 worth of toilet paper for War Department, QMC, from Bogart Paper Company, New York; $14,644.80 worth of bond paper for Government Printing Office from R. P. Andrews Paper Company, Washington, D. C.; $11,036,402.59[1] worth of envelopes for the Post Office Department from International Envelope Corp., New York; and $130,350.00 worth of cartons for War Department, Ordnance, from Edwin J. Schoettle Co., Philadelphia, Pa.

[1] Indefinite contract other than General Schedule. Purchases to be made if and when needed.

How Thrifty New Englan

Gets the EXTRAS from its Steam with G-E Mechanical-Drive Turbines

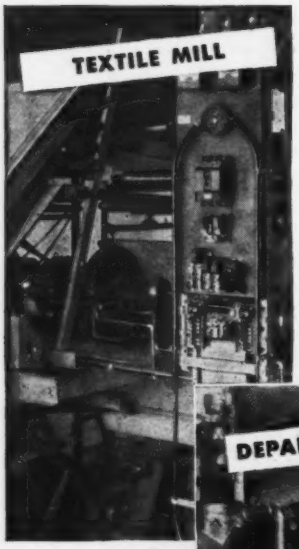
As A user of steam, you will be interested in the variety of ways typical New England business establishments are using mechanical-drive turbines.

Throughout New England day in and day out hundreds of G-E mechanical-drive turbines are utilizing available steam to drive pumps, fans, compressors, blowers, pulverizers, and stokers.

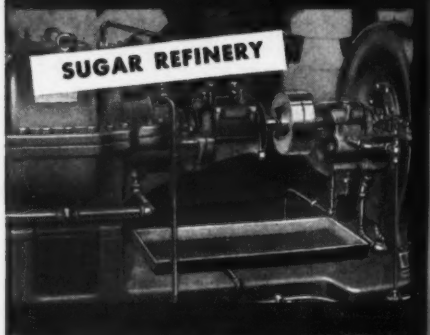
Two Ways Steam Turbines "Get the Extras"

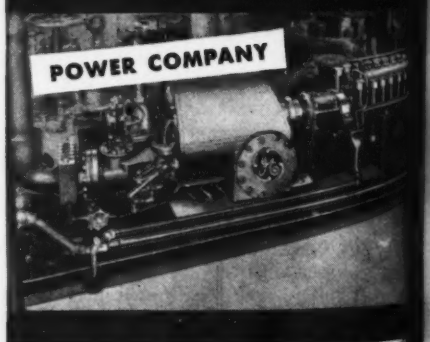
1. They do double duty — G-E turbines, as reducing valves, provide clean, low-pressure steam, and at the same time produce by-product mechanical power.

2. They utilize waste steam — G-E turbines are built to get energy out of steam which you may be exhausting to atmosphere.



Ask our local turbine specialist to show you how G-E mechanical-drive turbines can produce extra power for you. You may be able to save thousands of dollars. General Electric Company, Schenectady, New York.





GENERAL ELECTRIC

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Air Cleaning Methods*

By R. E. Chase[1]

Abstract

Types of air filters are described which are available to provide air of any degree of cleanness likely to be demanded by the industrial plant.

Up to 75 pounds of air per pound of pulp or paper may be exhausted from a drier, to be continuously replaced by new air. At 80 deg. F., 75 pounds of air will fill 1000 cu. ft. or a room 10 by 10 by 10 feet. About twice that much, say 150 pounds of air or 2000 cu. ft. per pound of pulp, would be a conservative estimate for supplying a drier and for ventilating a machine room.

Historical

Air filters are a comparatively recent development. The automobile industry provided the original spark in this country. W. M. Reed came back from France to his auto paint shop in Louisville upon the demobilization of the American Expeditionary Force after World War. In those days an auto paint job consisted of numerous coats of paint followed by a coat of varnish for a glossy finish. Forced ventilation was necessary to expedite the drying operations, and air filters were necessary to keep specks of dust from ruining the finish coat. Reed had an idea and made a frame of "2 by 4's," 20 inches square, and packed the frame with some of the same steel wool he used for polishing his work. He sprayed oil on the steel wool and thus the air filter was born. The Packard Company surprised Reed with an order for twenty of these filters and after he had recovered from the shock, he quit painting automobiles and organized the Reed Air Filter Company. This same "20 by 20 by 4" steel-wool-packed air filter, now improved with progressive packing of the medium (for efficiency and dust-holding capacity) and with steel case, supporting framework, handles and latches (for convenience in installation and servicing) is still a very popular and efficient type widely used in certain applications where service is tough and requirements are severe. Such a filter is surprisingly efficient even in removing bacteria from the air (Fig. 1).

At about this same time some Germans and Swedes conceived the idea of filling a frame full of little brass ferrules covered with oil. In moving around through the openings in such a filter, the dust in each tiny air stream is thrown by centrifugal force up against some oily surface where it sticks. The old Midwest Steel and Supply Company took up this idea and started the Midwest Air Filter Company. The trouble with their little ferrules, however, was that they would finally settle down in the frame and leave an empty space at the top through which unfiltered air could pass. They then developed the herringbone baffle with copper mesh backing, similar to a form of unit filter now in use.

Screen Type

Every once in a while some mill operator will get the idea of hanging up a screen, like an old Fourdrinier wire, across an air inlet; or he may use cheesecloth or even a felt cloth. Such a screen filter will first catch the large particles. The large particles arching over the apertures will in turn catch the finer particles with ever increasing efficiency. Unfortunately, however, as the efficiency increases, the resistance to the air flow increases also and the air capacity decreases rapidly. Frequent cleaning is required and there results a continual swinging back and forth from high capacity, low resistance, and low efficiency on the one hand, to low capacity, high resistance, and high efficiency on the other. Consequently, such screen-type filters are impractical except for handling very coarse cinders and the like, with provision being made for frequent cleaning and/or renewal of the filtering medium. One exception is in special laboratory test filters where a fine felt may be used to ob-

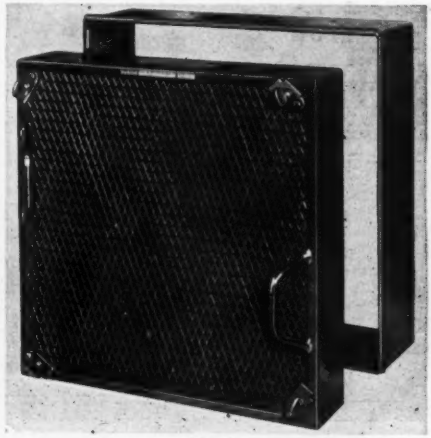


FIG. 1
Modern Counterpart of Original Reed Filter

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Olympic Hotel, Seattle, Wash., Aug. 20-23, 1940.

[1] Member TAPPI, R. E. Chase & Co., Tacoma, Wash.

tain very small quantities of very clean air. Some residential air filters are essentially fine screens turned out in quantity production at low first cost per unit. They are economical only in very small installations and when operating on small concentrations of dust which is mostly lint. The lint forms a secondary filter mat over the face of the screen surface, keeping the granular particles away from the pores. Larger installations are provided with means for changing the screen medium, either intermittently by hand, (Fig. 2) or continuously by mechanical means. The screen medium may be a fine felt which is expensive and, at best, short lived, or a soft porous paper mat or glass cloth. Sometimes the filter medium is treated with an adhesive which puts such a filter into a combination class—both screen and adhesive.

A high grade screen-type filter, 24 inches square and 8.75 inches deep, designed for 1000 c.f.m. and equipped with its filter medium arranged in accordion pleat, in order to crowd a lot of surface into a small cross section, will have the following characteristics:

Filter Medium	Initial Resistance inch	Initial Arrestance %	Final Resistance[1] inch	Final Arrestance %	Final Dust Load grams
Glass cloth.....	0.027	82	0.4	96	135
6-Ply paper.....	0.073	91	0.5	97	90
10-Ply paper.....	0.100	93	0.6	98	80

[1] Referred to water pressure.

These results were obtained with standard dust, a Cottrell precipitate, as used in the A.S.H.V.E. standard method of rating air filters (Fig. 3).

The interpretation of these figures shows that this type of filter is unsuited for large installations involving high concentrations of any fine granular dust similar to the official A.S.H.V.E. Cottrell precipitate. On the other hand, such filters might be very practical for fibrous or linty dust, particularly in comparatively small installations where automatic filters would hardly be justified.

Adhesive Impingement Type

The adhesive impingement principle was employed in Reed's steel wool filter and also both in Midwest's obsolete little ferrules and the modern type with herringbone baffles. Adhesive impingement is also used in most modern automatic self-cleaning filters. In

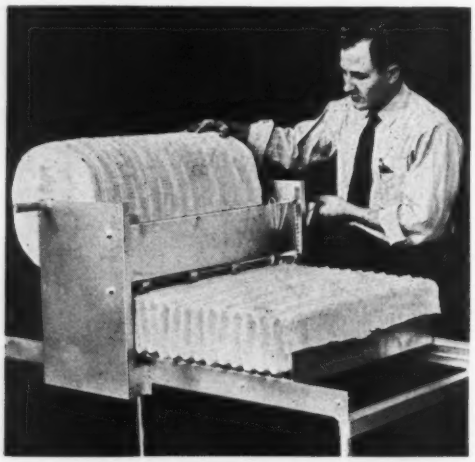


FIG. 2
Renewing Medium in Screen-Type Unit

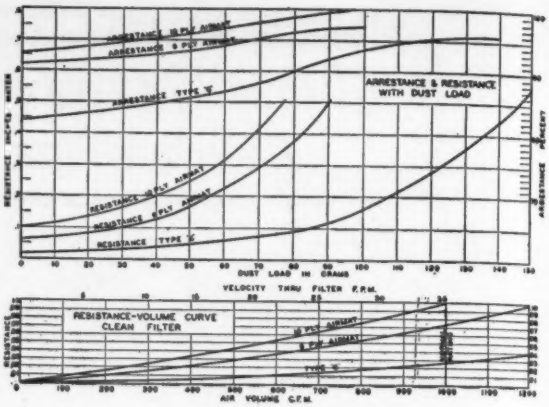


FIG. 3
Screen-Type Filter Performance

all these filters, the air current is divided by the wires, the ferrules or the herringbone baffles into many small streams. These minute air streams are made to twist and turn around many sharp corners and in turning these corners, the dust is thrown out by centrifugal force and adheres to the sticky surface. The dust particles absorb adhesive, become sticky and catch more dust. If the openings are properly proportioned beginning with large ones on the inlet or dirty-air side to trap the big particles first, and then on to progressively smaller openings towards the clean air side, such a filter will have a large dust-holding capacity without building up excessive resistance or sacrificing air cleaning efficiency. Such adhesive impingement filters are practically standardized for industrial use at a capacity of 800 c.f.m. per 20 by 20 unit. A Midwest cell will hold about one pound or 450 grams of dust before the resistance will much exceed 0.4 inch, water gage. The arrestance of such a filter will start at about 80% and will climb to about 90% at 0.4 inch resistance. *Arrestance* is a specific term used in rating air filters by tests made with standard Cottrell precipitate in accordance with the methods of the American Society of Heating & Ventilating Engineers. The corresponding Reed-type cell with the split-wire viscous coated packing, as now employed, will start off clean with a resistance of 0.275 inch and an arrestance of 71%. When its resistance has reached 0.4 inch, its arrestance has run up to 80%, and it has collected a load of 320 grams. Reed-type filters, however, can be and are made with various types of fillings to suit various types of dust and to met various degrees of cleaning efficiency. It must be remembered that arrestance in terms of the A.S.H.V.E. code may have little significance as related to the efficiency of a filter on some particular kind of dust found in the atmosphere around any given pulp mill.

In the continuous self-cleaning type, the filter medium is arranged in an endless chain which moves slowly through the air current and then through a cleaning bath which also serves to renew the adhesive coating. Such a filter is generally designed to operate at 500 f.p.m. air velocity with a constant resistance of 0.40 inch and will show a constant arrestance of about 86% on standard dust. This means better than 98% dust collecting efficiency on the kinds of dust usually encountered around pulp and paper mills.

Liquid Washer Type

An air filter, in the present acceptance of the term, is a device for removing by dry mechanical and/or electrical means the solid matter present in relatively small amounts in the air. Air filters, by this definition, are devices used for cleaning the air used for ventilation, heating, cooling, drying, humidification, or the like. Devices which have been used in this same field and for the same purposes, but which employ water or other liquids in the form of sprays or showers, are classified as air washers. Where water sprays are found in a modern air conditioning system, however, you usually will find that the liquid is employed for humidifying or dehumidifying, but not for cleaning; and you will be almost certain of finding some form of dry air filter in the same system, where it not only serves to clean the air, but also keeps dirt out of the liquid system. Air washers as cleaning devices were soon found to be inefficient and also expensive. It seems that most dust particles in this age of oil burners and automobiles have acquired an enveloping oil film which renders them immune to and unwettable by a water spray.

An air washer may have the further disadvantage of introducing humidity where it is not wanted; or if the water is cooled enough to avoid this humidification, an equally objectionable result is excessive cooling of the air. In the majority of cases it is best to make separate steps of air cleaning, humidity control, and temperature control. To attempt to accomplish two or three of these results in one step may lead to failure.

Electrical Precipitation Type

We can use electricity to "shock" dust into submission. I refer, of course, to electrostatic precipitation. This method, which has long been successfully applied to collecting heavy dust loads in flues carrying cement dust, coal ash, chemical and metallurgical fumes, etc., is now made available for air filtration in ventilating and drying service. There is a practical adaptation of the continuous, automatic, self-cleaning viscous-impingement filter in which an ionizing screen energized by a power pack located upstream imparts an electrostatic charge to the dust particles which are then drawn into the adhesive-coated and electrically-grounded plates. There is no generation of ozone.

At the commonly used velocity of 500 f.p.m. such a filter will have a constant resistance of only 0.15 inch and a cleaning efficiency so close to 100% that nobody could tell the difference by old-fashioned methods of weighing dust samples or counting specks by means of a microscope. The only way such filters can be rated is by the discoloration method of the National Bureau of Standards. By this method samples of filtered air are drawn through fine felt and the spots are compared by colorimetric methods. By such a method the electrostatic filter will test 85 at standard velocity as compared to 25 for the finest, tightest felt.

The electrostatic filter is the first practical industrial filter to stop the finest soot and smoke particles. You can blow cigarette smoke through an ordinary mechanical filter but not through one of the electrostatic type. If you connect a telegraph key into the power circuit of an electrostatic filter operated on coal smoke, you can print dots and dashes on a moving strip of test paper. The blank spaces are produced during the brief intervals when the current is flowing.

Rating of Air Filters

Confusion is bound to arise from the three different systems used for rating air filters. The first system of rating is that by per cent cleaning efficiency and is based principally on the manufacturer's claims. This system is subject to abuse. It starts off with the vague conception of average dust and runs up against the impossibility of making check tests. It's easy enough, of course, to weigh the dust picked up by an air filter from a given volume of air, but it is another matter to determine what per cent that weight is of the total dust in the air. Different filter manufacturers have different ideas as to what constitutes average dust. A manufacturer who can make himself believe, for example, that average dust is about the size of coarse sawdust is at a great advantage over a more candid competitor who considers average dust to be more like a mixture of wood flour and soot. Comparable filters will be rated perhaps at 99% efficiency by the first manufacturer and, say, 89% by the second. Such a system puts a premium on deceit and is being abandoned.

Attempt to Remedy Situation

The A.S.H.V.E. attempted to remedy the situation by developing a standard code and method of testing air filters. A standard dust is employed consisting of a special Cottrell precipitate which has passed through a 200-mesh screen. This code is good as far as it goes but it would be a mistake to select an air filter on the basis of code rating alone, particularly in cases where the dust involved is quite different from the standard dust used in the code tests. For example, in residential ventilation in a city like Seattle where the principal dust in the recirculated air is lint, a filter designed for high code arrestance would be too expensive or would have too high resistance, or both. A similar example would be a filter for a Flakt drier drawing its air from a linty cutting room. Filter rating is further complicated because the National Bureau of Standards comes along with its discoloration test. In this test the air is forced by a high pressure differential through a small disk of fine paper and the stains produced by filtered and unfiltered air are compared by colorimetric methods.

Same Laboratory Should Make Tests

Nobody knows yet whether a mill, in going about the purchase of an air filter for a drier for drying fine paper or a high grade of dissolving pulp, would be justified in demanding high rating as measured by this discoloration method. It would be interesting to know this, and it is hoped that some pulp and paper research laboratory will decide to make some tests. The only practical filter yet devised which will develop such high cleaning efficiencies by discoloration standards is the electrostatic. The question I would like to have answered is whether or not the removal of soot and smoke particles from drier air by an electrostatic filter would produce a product sufficiently whiter to justify the expense. Such research could well be conducted by a laboratory to which is available a drier operating on such high quality stock.

A comparison of ratings of filters by the three methods described might be according to the following table:

Filter	Manufacturers Rating Efficiency Clean %	Manufacturers Rating Efficiency Loaded %	A.S.H.V.E. Arrestance Clean %	A.S.H.V.E. Arrestance Loaded %	Discoloration Rating %
Renewable residential...	85	98	70	95	very low
Adhesive impingement (Midwest)	97	99	80	90	very low
Adhesive impingement (Reed)	95	99	71	82	very low
Glass cloth, $\frac{1}{8}$ in.....	95	98	82	96	very low
Glass cloth, $\frac{1}{16}$ in.....	96	99	90	98	very low
Airmat, 6-ply.....	96	99	91	97	very low
Airmat, 10-ply.....	97	99	93	99.5	very low
Fine felt	99	100	97	99.9	25
Electrostatic, 500 f.p.m..	100	100	100	100	85
Electrostatic, 100 f.p.m..	100	100	100	100	98

Selection of Filtering Medium

In the selection of the air filtering medium there are several other considerations besides efficiency. Among these considerations are dust-holding capacity, the resistance offered to the air stream, ease and cost of cleaning, cost of maintenance and other factors to be discussed later.

Perhaps the most important consideration is the degree of cleaning desired. In the case of driers for pulp and paper, the requirement until recently has been only to remove visible specks like cinders, charcoal, and the like which would lower the grade of the product. Now we are required to remove from the air all insoluble particles large enough to plug the orifices through which the dissolved pulp will be extruded in the rayon process. Filters are selected not only to remove solid matter from the average quality of air to the drier, but to safeguard against such severe conditions as might occur unexpectedly. Another common need is to remove from the air the lint within the mill itself from paper cutting machinery before it can cause trouble in driers or elsewhere. Adhesive impingement filters have generally been considered good enough for this service and are likely to continue in use unless it should prove practical to improve color by removing soot and smoke by the electrostatic means just mentioned.

Electrostatic filters are coming into use for cleaning air for electrical machinery as a film of soot can effectively retard the radiation of heat from electric coils and can also interfere with electrical contacts in delicate switching equipment such as is used in connection with automatic control. Similarly, the heat transfer coefficient of all driers and heat exchangers will be improved by preventing the accumulation of insulating dust and soot films on the heating surface.

For supplying grit-free air for air compressors in pulp and paper mills, adhesive impingement filters are again used, but they must be of special sturdy construction to resist the pulsations caused by the compressors. Grit, of course, damages compressor cylinders, valves, and other wearing parts. The trace of soot which escapes such filters might even be considered beneficial to the compressors as a lubricant provided it does no harm where the compressed air is delivered. For very heavy dust loads, compressor filtering equipment is available for giving the air a vigorous scrubbing in oil followed by centrifugal devices, baffles, and entrainment collectors for separating oil and air.

For the ventilation of screen rooms, blowpits, bleach plants, warehouses, laboratories, and general offices, the choice ordinarily has fallen between adhesive impingement and screen-type filters. It's largely a question of cost and personal preference. When screen types are employed they may be felt cloth, but are almost always either glass cloth or a cellulosic, paper-like medium. Of these "screen" types, felt cloth would produce the highest initial arrestance but this advantage is more than counterbalanced by short effective life, excessive resistance, and high maintenance cost. The cellulosic paper-like media have lower resistance and greater dust-holding capacity than felt and are much more practical. The screen-type medium is generally arranged in a series of parallel pockets or else in accordion-pleated cells in order to crowd the maximum filtering surface into the minimum cross section of duct. For large volumes of air, the choice generally goes to adhesive impingement because this method has been successfully applied in automatic, self-cleaning models.

Selection of Operating Method

After the choice of medium has been made, the operating method must be studied. The broad choice lies between unit filters which are serviced manually at intervals and automatic self-cleaning filters. The unit filters are themselves divided into two classes, renewable and cleanable.

The one great criticism of all unit filters, whether renewable or cleanable, when used in connection with large drying or ventilating projects is that their resistance begins to increase and their capacity to decrease from the time they are installed clean until they are removed for servicing. Even in the case of large unit installations where the operators have a strict schedule of servicing some portion of the system every so many days, it is practically impossible to maintain constant conditions of velocity, temperature, and humidity. A large pulp drier for example is an extremely sensitive machine. Air is a medium which is sensitive also. But the engineer employs this supersensitive machinery to produce pulp or paper continuously and at a very high speed in the midst of the constant necessity of controlling that supersensitive element, air, as to its temperature, humidity, velocity, and direction. If, as is generally the case, the hot, moisture-laden air is removed from the drier by an exhaust system, it seems self-evident that it becomes highly essential to supply fresh replacement air to the machine room and the drier itself at a constant rate and under constant conditions. Otherwise it is inevitable that there will be fluctuations in the drying conditions and variations in the product.

System Must Be Carefully Balanced

The same requirements are in force in any large ventilating system involving the distribution of air through ducts by means of fans and dampers. Such a system must be carefully balanced when first installed and it must remain in the same delicate balance. This requirement of balance is the principal reason for the heavy trend towards automatic air filters in both drying and ventilating. Automatic filters are more expensive in first cost than unit filters. The former cost in the neighborhood of $50.00 per 1000 c.f.m. of capacity as compared to about $24.00 for comparable manually cleaned filters. Fortunately, however, the automatic filters are much lower in operating cost and maintenance. Labor is reduced to the insignificant duty of dumping the

accumulated sediment and maintaining the oil level, as compared to the tedious disagreeable task of changing, steaming out, dipping, and draining unit filters. Furthermore, the oil consumption of automatic filters is lower than that of cleanable types due to the elimination of wastage.

Have Much Slower Depreciation Rate

Automatic filters have a much slower depreciation rate than units for two reasons; first, they are free from the wear and tear resulting from manhandling, and second, the filter medium repassing through the the oil bath every day or so prevents atmospheric corrosion. This item of corrosion in the case of unit filters, which only take their turn in the oil bath every six weeks or so, can become a really serious item.

In the "multipanel" automatic filter, the filter medium is an endless curtain moving very slowly over top and bottom sprockets. The curtain is made up of a series of panels which overlap like the shingles on a roof. The bottom section of each panel, or the part which is visible, is made up of a metal strip specially pressed and slotted to catch and hold lint. The second strip from the bottom, or the section which falls immediately behind the exposed strip, is a double thickness of galvanized screen. The next two sections of each panel are double thicknesses of screen which has been dipped in molten bakelite into which fine fibres have been stirred. Consequently, after passing the front lint-catching plate and the series of fine galvanized screens, each little air stream must thread its way through another series of screens each wire of which has an extended surface like that of a fuzzy caterpillar. This fuzzy surface holds oil, the oil holds dust, and the oily dust catches and holds more dust. We have now traced the course of the air through the curtain on the inlet or dirty air side. But it still has to work its way through the downcoming side of the curtain on the outlet side. When the panels turn the bottom sprocket of the endless curtain they separate from each other and hang and swing through the oil in the reservoir. The dust accumulated in the preceding round trip becomes loosened and settles to the sediment trough in the bottom of the reservoir. Those dust particles that remain in suspension in the oil and return to the panels for another trip through the air stream, actually improve the dust-catching properties of the oil by producing a more extended surface on each wire for the trapping of more dust. The curtain moves so slowly that all excess oil drains into the reservoir before the panels enter the air current. There is no measurable contamination of air by oil if the air velocity and temperature are maintained within specified limits. A similar endless-chain-type, automatic, self-cleaning, adhesive-impingement filter designed for electrostatic operation by grounding the curtain and locating an electrostatic element up stream, will cost almost twice as much as the multipanel. It will remove not only dust but smoke and fine soot.

Kalamazoo TAPPI Discusses Pigments

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry held its regular meeting at the Park-American Hotel, Kalamazoo, Mich., Thursday, November 7, 1940. W. K. Kidder of the Bryant Paper Company presided as chairman.

C. R. Trueblood of the Holland Aniline Dye Company, Holland, Mich., presented a paper on "A Background and Development of Colors." In his discussion Mr. Trueblood traced the early history of inorganic and organic pigments and showed the industrial application of each particular type of pigment. Following the discussion of the paper a film "Mystic Fibers" was shown through the courtesy of the Puget Sound Pulp and Paper Company.

Among those present were: Ralph Atkins, M. R. Bailey, R. L. Barton, John E. Bauman, Harry C. Bindford, P. S. Cade, O. W. Callighan, Fred L. Chappell, Jr., A. W. Cole, Paul de Guehery, G. F. Des Autels, Frederick D. Elliott, Myron F. Flotow, Frederick Franz, Charles Gardner, John W. Gilkey, F. R. Hamilton, Jack Hartung, W. F. Hathaway, A. E. Hays, J. A. Heenan, V. Heinmuller, G. T. Ingling, W. K. Kidder, Henry Kleinheksel, Earle L. Kirpsantt, Lloyd J. Lynd, M. R. Matteson, Howard Merkle, Wm. H. Monsson, Henry Nendorf, Russell B. Nunemaker, Charles H. Olmstead, Lawrence A. Rauner, A. B. Savage, G. C. Schmid, Fred K. Shankweiler,. Charles F. Somerville, Mortimer E. Stern, F. A. Strovink, E. B. Taylor, W. S. Taylor, W. R. Tobin, C. R. Trueblood, James R. Verdon, Joe Waber, Arthur Weinland, Clarence A. White, and E. Frank Whittington.

Lake States Discusses Sulphite Pulping

The Lake States Section of the Technical Association of the Pulp and Paper Industry held its regular meeting Tuesday, November 12 at the Loraine Hotel, Madison, Wis. The U. S. Forest Products Laboratory is located at Madison and sponsored the program.

The first paper on the program was "Experiments on the Use of Certain Wetting Agents in Sulphite Pulping" by J. N. McGovern and G. H. Chidester. Dr. McGovern presented the paper which covered the effects of a number of wetting agents on the penetration and pulping of several species of wood by the sulphite process.

The second paper was "Hardwoods and the Neutral Sulphite Semichemical Pulping Process" by C. E. Curran and was presented by Dr. Chidester. It discussed the high yield semichemical process and recent experiments in producing newsprint and fiberboards from hardwoods using this method. F. A. Simmonds discussed the bleaching of these pulps in a supplementary talk.

Among those present were: P. K. Baird, C. M. Baker, John Beaumont, P. B. Borlew, Mark W. Bray, C. O. Bruden, Thayer W. Burnham, R. A. Campbell, W. Boyd Campbell, T. A. Carlson, G. H. Chidester, David W. Choate, N. H. Christian, James B. Clarke, A. A. Coffin, C. W. Converse, M. K. Dickerman, B. Domogalla, M. L. Downs, Sigge Ekman, W. J. Foote, W. L. Hambaecht, Elwin E. Harris, Melburn Heinig, E. E. Hrubesky, Richard G. Knechtges, D. Kundiger, J. S. Martin, John W. McGovern, Merrill Millett, Emil R. Padavic, J. C. Pew, C. Piper, W. C. Prebbanons, George J. Ritter, Jerome Sceeman, E. R. Schafer, Chas. J. Schiefelbein, Geo. E. Mackin, Milton G. Schmitt, C. A. Schroeder, Fred Schwanberg. Clarence Seborg, F. A. Simmonds, Martin Van De Loorschot, Reinhold Vogt, H. L. Voss and Rudolf Weiler.

Action of Ultraviolet Light on Lignin*

By Loren V. Forman[1]

Abstract

Irradiation of lignin with ultraviolet light leads to the formation of light-absorbing compounds which cause a reversion of color (fading) in the irradiated lignin. The color reversion noted on irradiation of extracted sprucewood meal is at least partially due to formation of these compounds from the lignin. Lignin undergoes drastic chemical changes as a result of ultraviolet irradiation. These changes are characterised by a decrease in the methoxyl content and a decrease in the lignin as determined by the 72% sulphuric acid method. As stated native lignin showed more color stability than did the other samples of ligneous materials tested. As stated native lignin suffers less demethoxylation because of irradiation than lignin isolated from irradiated wood meal. It seems probable that, owing to irradiation, the lignin in the wood meal is brought into a higher state of activity than the isolated native lignin and that it suffers more severe changes while in this nascent state.

The ultraviolet absorption spectrum of isolated native lignin is changed by ultraviolet irradiation. The original spectrum is characteristic for all of the commonly isolated lignins and lignin derivatives. Its change after irradiation shows that a drastic change has taken place in that portion of the lignin structure responsible for the original characteristic curve.

Alcohol extraction of irradiated wood meal or lignin yields colored solutions of reaction products made alcohol-soluble by the action of the light. Evidence is presented which indicates that these alcohol solutions contain a mixture of lignin degradation products, some of which are obviously products of oxidation reactions. One such fragment was vanillin. Another, having a methoxyl content of 10.6%, showed some physical resemblance to native lignin. The presence of vanillin in a sheet causes rapid fading of the sheet on irradiation.

The action of ultraviolet light on lignin is very complex. The primary reaction probably involves the rupture of linkages and rearrangements of structure which make available new points of attack for such reactions as photochemical oxidation. The secondary reactions probably include the formation of a series of oxidation products which in turn may form colored compounds by polymerization.

With the evolution of the paper industry and the growth of the use of chemical wood pulp and groundwood, sunlight was recognized as an adverse factor influencing color permanence. Its specific action, however, was little understood beyond the fact that the ultraviolet rays appeared to be more destructive than the visible or infrared rays.

Early investigations were concerned with the loss of strength observed in papers on exposure to the light. Later investigations were concerned with color permanence. All attempts to study the problem of permanence fundamentally have been handicapped by the chemical heterogeneity of the pulp or paper being studied and by the lack of knowledge concerning the exact nature of some of the constituents. One of the least understood of these components has been lignin. Attempts to study the effect of light on lignin have been rendered inconclusive by the fact that the lignin could not be isolated without having suffered some chemical change in the isolation process.

A review of the literature provides very little background for a study of the action of ultraviolet light on lignin. A relatively large amount of work has been done on the effect of light on cellulose, but even this has been largely of a general qualitative nature. Several investigators noted that a close relation existed between cellulosic purity of papers and their stability to light.

Perhaps the nearest approach to the present problem is to be found in the study of the effect of light on groundwood papers, since such papers contain much more lignin than the more purified pulps usually studied. The permanence of groundwood papers is of comparatively recent interest. From the time the first groundwood was made in this country until within this century its uses were largely limited to filler purposes in papers whose permanence was not a matter of importance.

Hirschkind *(1)* in 1932 attributed the brown color of discolored groundwood to the formation of humus from the cell membranes. More recently, Bakker *(2)* studied the action of ultraviolet light on groundwood and concluded that the darkening in color is due to the oxidation of the lignin to humic acid. His conclusion is based on an examination of the coloring material extracted from the paper by 0.5% ammonium hydroxide and precipitated with hydrochloric acid. On fusion of the extract with potassium hydroxide he found oxalic acid, oxyhydroquinone, pyrocatechuic acid, and pyrocatechin. Using Kürschner's sublimation method at 220 deg. C., he found vanillic acid and some vanillin.

It was the purpose of this study to make an exploratory investigation of the effect of the ultraviolet light on lignin.

If definite changes in the lignin take place as a result of exposure to ultraviolet light an investigation of the nature and extent of these changes should constitute a contribution to the general knowledge of lignin chemistry. A simultaneous study of the color changes resulting from irradiation of lignins and ligneous materials should show the extent to which lignin is responsible for the so-called fading phenomenon. If color changes bear a definite relationship to chemical changes in the lignin it should be possible to draw some conclusions regarding the mechanism of the fading process and, perhaps, eventually to suggest some means for stabilizing the color of pulps having a definite lignin content, particularly groundwood.

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Olympic Hotel, Seattle, Wash., Aug. 20-23, 1940.

A portion of a thesis submitted in partial fulfillment of the requirements of The Institute of Paper Chemistry for the degree of Doctor of Philosophy from Lawrence College, Appleton, Wis., June, 1940. This work was carried out under the guidance of F. E. Brauns.

[1] Member TAPPI, The Mead Corp., Chillicothe, Ohio.

Apparatus

Fade-Ometer

For irradiation of wood meal in sheet form the Atlas carbon arc Fade-Ometer was used. It was equipped with an automatic timing device which stopped the arc at any predetermined time and indicated the time of stopping if the arc failed before the appointed time.

One electrode of the carbon arc was cored, giving the arc a spectral energy distribution unusually high in the ultraviolet range. Inspection of the arc with a Bausch and Lomb monochromator indicated that the peak output was at about 3700 Å and that there was no irradiation shorter than 3100 Å. There was obviously some radiation in the visible and infrared region as well.

Sterilamp Apparatus

For irradiation of powdered materials a special apparatus was constructed, which is shown in Fig. 1. The material to be irradiated was placed in the horizontal aluminum cylinder which was slowly rotated on its roller supports by a motor acting through gear and pulley speed reducers. The light source was a Westinghouse Sterilamp, operated from a transformer which raised the 115-volt a.c. line voltage to 3000 volts.

The Sterilamp is a low pressure mercury vapor lamp having an envelope which transmits a high percentage of radiations of wavelength of 2537 Å. According to the manufacturer approximately 88% of the radiation output of this lamp was from the 2537 line of the mercury emission spectrum. The small amount of emission in the visible range consisted chiefly of wavelengths below 5780 Å.

Two 20-inch Sterilamps were used in these experiments. After one lamp had been used about 1300 hours, its intensity was compared with that of the second which had been used for about 300 hours. The intensity of the older lamp was 87% of the intensity of the newer lamp. The comparison was made with a General Electric light sensitive photocell directly connected to a Weston model 440 microammeter. Over the face of the photocell were placed a Wratten A 25 filter and a fluorescent screen. The latter was a thin glass coated on the front side with cadmium borate phosphor (Nela Park). The term "phosphor" denotes a fluorescent and phosphorescent material. The properties of the cadmium borate fluorescent coating have been described by Thayer and Barnes *(3)*. A graph of the spectral distribution of visible energy radiated from such a coating on a fluorescent lamp showed a maximum energy output at 6150 Å and virtually no radiation below 5200 Å. The visible radiant energy is pink in color.

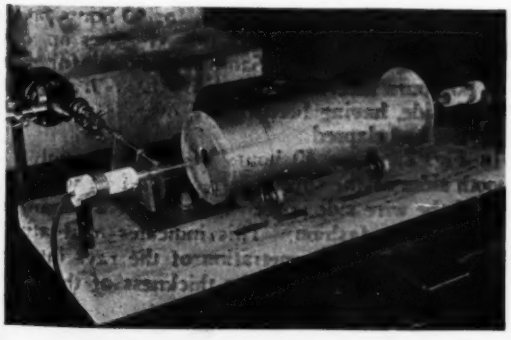


Fig. 1.
Sterilamp Irradiation Apparatus

From data on the relative intensity of the various lines in the emission spectrum of the Sterilamp and data on the excitation values of these lines, a calculation was made showing that, if the excitation due to radiation at 2537 Å was taken as 100, the sum of excitations due to all neighboring lines from 2652 to 3654 Å inclusive was 1.4.

The Sterilamp possessed the advantage of having a low operating temperature. The effects produced could thus be attributed directly to the ultraviolet irradiation with the possibility of thermal degradation removed. Operating temperatures inside the rotating drum were never found to exceed 30 deg. C.

Optical Equipment

Reflectance measurements were made on the General Electric reflection meter and the General Electric recording spectrophotometer. The latter instrument was also used for measurement of spectral transmittance of solutions.

Ultraviolet absorption data were secured with the use of the Bausch and Lomb medium quartz spectrograph. This instrument was equipped with the multistep sector photometer developed at the Institute. The light from an iron arc passed through the quartz absorption cells to the slit of the spectrograph. Alternate steps of the slit received light transmitted by solution and by solvent, the latter being reduced in intensity by known percentages. The resulting image on the photographic plate consisted of 11 strips of solvent transmission spectrum of varying intensity. Between the solvent strips were 10 strips of solution transmission spectrum. Match points were noted where solvent and solution strips were of equal density. The wavelengths at which match points occurred and also the relative intensities of the corresponding solvent strips were noted. Plotting these data produced the spectral absorption curve of the material in solution.

Experimental Work

Analytical Procedures

The determination of the methoxyl groups in both wood meal and lignin was carried out according to Zeisel's method with a few changes in the quantities of reagents employed.

The determination of lignin was carried out according to the modified Forest Products Laboratory's method except that smaller samples were used and other quantities reduced proportionally. It was found that good agreement could be obtained with different sample weights if the proportions were carefully maintained.

Brightness tests were made on the reflection meter and reflectance curves and transmission curves were made on the spectrophotometer. When making color analyses of wood meals and lignins in powdered form, a special technique was required. This resembled the technique used in obtaining reflectance data on clays and fillers. The powdered material was packed into a cylindrical container, such as the hollow top of a weighing bottle. Uniform packing was secured by the use of a pan balance. A 10-pound weight was placed on one pan and a tared glass plate on the other. The powdered material was placed on the glass plate and the cylindrical cup pressed into

it with the open face down. By exerting a downward force just sufficient to balance the 10-pound weight and carefully rotating the cup, a smooth surface was obtained flush with the rim of the cup. This face was then presented to the sample opening in the integrating sphere on the spectrophotometer for analysis.

Tests for pH values were made with the glass electrode, using the Cameron portable apparatus.

Preparation of Wood Meal

The wood meal used in this work was prepared from black sprucewood. It was thoroughly extracted with alcohol and an alcohol-benzene mixture and airdried. In order to secure maximum surface for irradiation, the airdried wood meal was beaten in water suspension in a Valley (TAPPI standard) laboratory beater. The consistency was about 4% and the 400-gram charge was beaten about 10 hours with a 6500-gram weight on the bedplate.

The beaten pulp was washed thoroughly with alcohol, absolute alcohol, ether, and petroleum ether and placed in a vacuum desiccator until no odor of petroleum ether remained. Such a wood meal was fluffy and could be readily analyzed.

Preliminary Experiments

The purpose of the preliminary experiments was to determine the best method for exposing the wood meal to the ultraviolet rays. The carbon arc Fade-Ometer was chosen as the light source. The wood meal was exposed in three forms—namely, as sheets, as a powder, and in water suspension. It was exposed to the arc for 45 hours. The sheets were turned after 21.5 hours.

Before analysis, the irradiated samples were extracted with 95% ethyl alcohol, absolute alcohol, ether, and petroleum ether, and dried in a vacuum desiccator. Samples were analyzed for methoxyl, lignin, and methoxyl in the lignin.

On the basis of these tests, exposure in sheet form was chosen as the most efficient and expedient procedure for use with the Fade-Ometer. The use of the water suspension involves not only longer exposures but raises the question of proving that the water is entirely inert with respect to ultraviolet irradiation. The exposure in powder form is good, but it involves a difficult problem of agitation to secure uniform exposure on all particles. The light caused an apparent decrease in the methoxyl content of both the wood meal and the lignin.

From these preliminary experiments it was considered advisable to carry out a more detailed study of the effect of light from the Fade-Ometer on sheets of sprucewood meal.

Fading of Sprucewood Meal Sheets

Sheet-Forming Technique

The first step in this particular investigation was to prepare a large number of sheets from the beaten wood meal. This required the development of a new technique, for the wood meal had been beaten so much that the wet strength of a freshly formed sheet was too small to permit couching by the usual procedures. It was desirable to use very thin sheets to permit better penetration by the rays of light.

A satisfactory technique was developed using the Noble and Wood sheet-forming apparatus. A fine mesh wire was used and the vacuum during drainage was limited so as not to exceed five inches gage. The wire and sheet were lifted together and placed sheet side down on a clean smooth ferrotype. A dry blotter was placed over the wire, and a felt over the blotter. After passing a roller over the felt-blotter couch pad, the wire was lifted from the sheet, which then adhered to the ferrotype until airdry. This procedure gave sheets having one very smooth side and one side bearing some wire marks. In the discussion the two sides will be referred to as the "smooth side" and the "wire side."

Color and Chemical Changes

On the basis of the preliminary experiments it was considered advisable to study the effect of time of exposure on the following properties of the wood meal irradiated in the Fade-Ometer in sheet form: (1) brightness, (2) methoxyl in wood meal, (3) lignin, and (4) methoxyl in lignin.

After chosen periods of exposure, brightness tests were made; the material was then extracted with 95% ethyl alcohol, absolute ethyl alcohol, ether, and petroleum ether. Analyses were carried out for lignin and methoxyl as in the preliminary experiments. It was anticipated that the data would show not only the relative rates of chemical changes but also whether or not an end point for such changes could be reached on long exposures to ultraviolet light.

Two sheets were exposed for each interval and were then extracted and analyzed. The process was repeated with two new sheets for the next interval. Certain small discrepancies are bound to occur from such a procedure because of the variation in sheet density and thickness and to unequal emission of light energy in the different quadrants of the arc housing. However, such a procedure seemed justified in order to have sufficient wood meal at each interval for a good analysis. The results obtained are tabulated in Table I. They are shown in Fig. 2.

TABLE I.—IRRADIATION OF SPRUCEWOOD MEAL SHEETS

Sample	Exposure Hours Per Side		Brightness		Lignin	Methoxyl in Sheet	Methoxyl in Lignin
			Smooth Side	Wire Side	%	%	%
S_1-0	0	0	50.2	46.5	27.54	4.97	15.6
S_1-1	2	0	43.6	46.0	27.01	4.94	15.4
S_1-2	10	0	33.9	45.9	25.95	4.62	14.32
S_1-3	20	0	29.3	44.9	25.34	4.40	13.95
S_1-4	31.5	0	28.8	44.6	24.45	4.17	13.29
S_1-5	40	0	28.0	44.1	24.40	4.13	13.25
S_1-6	41	3	26.4	37.6	23.0	4.09	13.17
S_1-7	40	10	24.8	30.0	22.65	4.08	12.54
S_1-8	40	25	22.3	25.5	21.93	3.88	11.88
S_1-9	40	40	20.7	22.3	21.09	3.76	11.85
S_1-10	50	50	21.7	20.4	20.67	3.57	11.84
S_1-11	60	60	21.5	21.4	19.55	3.44	11.52
S_1-12	85	85	20.1	21.1	17.97	3.04	10.45

Samples exposed for a total time of 40 hours or less were irradiated only on the smooth side. Samples receiving more than 40 and not more than 80 hours of total irradiation were exposed for 40 hours on the smooth side, then turned over for exposures up to 40 hours on the wire side. Samples exposed for more than 80 hours received one half of the total exposure on each side, having been turned over after half the total time had elapsed.

In Fig. 2, up to 40 hours of exposure, only the smooth sides of the sheets were exposed. The brightness of the wire side is seen to drop but little, and in a straight-line fashion. This indicates qualitatively that the distance of penetration of the rays into the sheet was much less than the thickness of the sheet.

The wire side was exposed for between 40 and 80 hours only; the smooth side had already been exposed for 40 hours. In this interval the brightness of the smooth side of the sheet decreased along a curve

rather than a straight line and much more rapidly than in the case of the wire side during the first 40 hours. The reason for this is in the fact that the thickness of the unexposed section in the center of the sheet was rapidly diminishing. Thus, in 40 hours the brightness drop had effectively reached an end point as far as the exposure of one side was concerned. After 40 hours of exposure on each side of the sheet, the brightness of the sheet had reached a constant value. Whether or not the rays had actually reached the center of the sheet could not be said with certainty, but it appeared that they had done so from the way the curves flattened out and showed no tendency to drop any further. Examination with a hand lens of sheets exposed 85 hours on each side revealed no lighter colored portion in the center of the sheet.

However, Table I reveals no corresponding end point in the chemical characteristics studied. The loss of lignin on continued exposure showed a fairly steady downward trend with about 35% of the original amount having disappeared after 170 hours of exposure. The percentage of methoxyl in the wood meal showed a steady downward trend; about 39% of the original amount disappeared in 170 hours. The isolated lignins became progressively darker in color and more difficult to filter as the exposure time was increased.

It may be noted that the time required to reach the brightness end point was about the same as that required to remove one fourth of the methoxyl from the lignin. The changes in lignin and methoxyl that occurred after 80 hours of exposure seemed to cause no color changes. This might lead to speculation as to whether the color change was tied up in some way with the loss of one of the methoxyl groups in the lignin.

Regardless of the effect of demethoxylation on color changes, a definite relationship did exist between the methoxyl content and the lignin content of the irradiated sheets analyzed after alcohol extraction.

If A is the percentage of methoxyl in the lignin isolated after irradiation and extraction of the wood meal, B is the percentage of isolated lignin in the weight of the dry extracted wood meal, and K is a constant, these quantities may be related mathematically: $A = KB$ or $A/B = K$. In the range studied in these experiments, K was 0.566, the same as the A/B ratio for the lignin isolated from unexposed wood meal. A similar relationship was found to exist between the percentage of methoxyl in the extracted wood meal and the lignin content. The possibility is suggested by these data that the acid solubility of the lignin is not only related to but is dependent on the methoxyl content of the lignin.

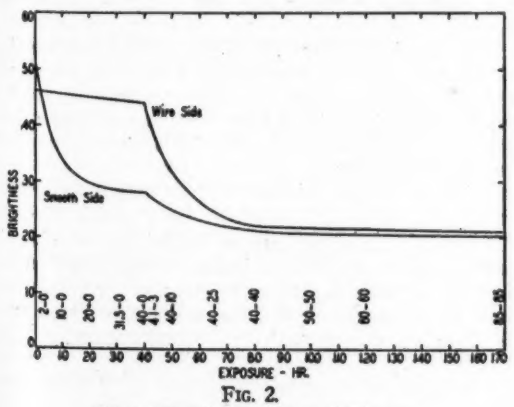


FIG. 2.
Effect of Irradiation Time on Brightness

As far as the behavior of the lignin *per se* is concerned, its apparent loss on irradiation and extraction of the wood meal may have been due to two effects. The light energy may have caused such changes as to render the lignin more soluble in alcohol and/or more soluble in the sulphuric acid used for the lignin determination. The mechanism of the changes leading to increased solubility of the lignin are unknown. They may involve depolymerization, tautomeric rearrangement, or a change in constitutional structure with or without oxidation. In any case the methoxyl data serve as an index to indicate that drastic changes have taken place in the lignin.

After irradiation and extraction with alcohol the wood meal was no longer able to produce the characteristic purple coloration when tested with hydrochloric acid-phloroglucinol reagent. With increased time of irradiation the color became more orange than purple and was much diminished in its intensity. With the longest exposures the staining was barely perceptible. In sheets which had been exposed on one side only, the unexposed side retained its original color reaction, indicating that the rays had not penetrated the thickness of the sheet.

Not only has an apparent loss in lignin occurred on irradiation and extraction, but the remaining lignin has been partially demethoxylated. The two effects are definitely related.

The loss of methoxyl in the wood meal indicated either that the light caused a chemical change in the methoxyl groups so that they no longer appeared as such on analysis, or that the light caused a split in the lignin molecule so that a methoxyl-containing fragment became alcohol soluble.

Ultraviolet Irradiation of Sprucewood Meal

The wood meal for this experiment was prepared from black sprucewood. It was first extracted with ethyl alcohol at room temperature to remove the so-called native lignin which was used in a later experiment in this study. Following this, the wood meal was thoroughly extracted with an alcohol-benzene mixture, airdried, beaten, and washed with alcohol, ether, and petroleum ether as in the preceding study with the Fade-Ometer.

About 10 grams of this wood meal were placed in the Sterilamp irradiation apparatus shown in Fig. 1. Samples of about two grams each were removed after 120, 236, 400, and 710 hours of irradiation and were analyzed for color, methoxyl content, lignin, and

TABLE II.—ULTRAVIOLET IRRADIATION OF SPRUCE-WOOD MEAL

(Samples Not Extracted After Irradiation)

Sample	Irradiation Time hours	Methoxyl in Wood Meal %	Lignin %	Methoxyl in Lignin %	Reflectance at 458 mμ %
Ss-0	0	5.03	27.01	16.16	45.8
Ss-1u	120	4.67	25.87*	15.09	31.6
Ss-2u	236	4.55	25.11*	14.79	28.5
Ss-3u	400	4.53	24.33*	14.59	26.0
Ss-4u	710	4.49	23.03	14.51	24.0

* Single determination.

TABLE III.—ULTRAVIOLET IRRADIATION OF SPRUCE-WOOD MEAL

(Samples Extracted After Irradiation)

Sample	Irradiation Time hours	Methoxyl in Wood Meal %	Lignin %	Methoxyl in Lignin %
Ss-0	0	5.03	27.01	16.16
Ss-1	120	4.83	24.56	15.45
Ss-2	236	4.53	24.41	15.00
Ss-3	400	4.33	23.43	14.93
Ss-4	710	4.52	22.46	14.88

methoxyl in the lignin. The last three tests were also run on both extracted and unextracted samples. The data secured are shown in Tables II and III and in Fig. 3.

The drop in reflectance in this experiment was of the same order of magnitude as that observed in the Fade-Ometer fading of groundwood sheets. In this experiment all particles received equal exposure in the rotating drum. In the Fade-Ometer experiment the surface of the sheets received maximum exposure, whereas the interior of the sheet was dependent on the penetrating power of the rays for its degree of irradiation. The average reflectance of the particles of wood meal in the sheet may have been less than the reflectance of the surface tested in the Fade-Ometer experiments.

Although the magnitude of the reflectance changes were comparable in the two experiments, the changes in lignin and methoxyl contents were considerably less drastic when the wood meal in powdered form was irradiated by the Sterilamp. Because of differences in intensity and spectral energy distribution of the two light sources, considerably longer exposures were required by the Sterilamp to effect the same degree of fading as the Fade-Ometer produced.

The reflectance at 458 mμ of the wood meal exposed for 710 hours represented a loss of nearly 48% of the original value. The Fade-Ometer exposed samples lost approximately 57% of their original brightness in 170 hours.

Tables II and III indicate that the ultraviolet irradiation caused losses in lignin and methoxyl contents of the wood meal. Lignin values were lowered by alcohol extraction, whereas the methoxyl content of the lignin was slightly raised. This was in accord with the effect of extraction observed on analyses of sheets irradiated in the Fade-Ometer.

Sterilamp Irradiation of Other Materials

A sample of sprucewood meal was irradiated after eight months of storage in an airdry condition. This wood meal showed a tendency to revert in color during the storage period. After 240 hours of irradiation the reflectance at 458 mμ had decreased by approximately 38% of its original value. In the same time, the lignin had lost approximately 8% of its original amount. The data on the methoxyl content of the wood meal and lignin were inconclusive beyond the indication that the changes were small.

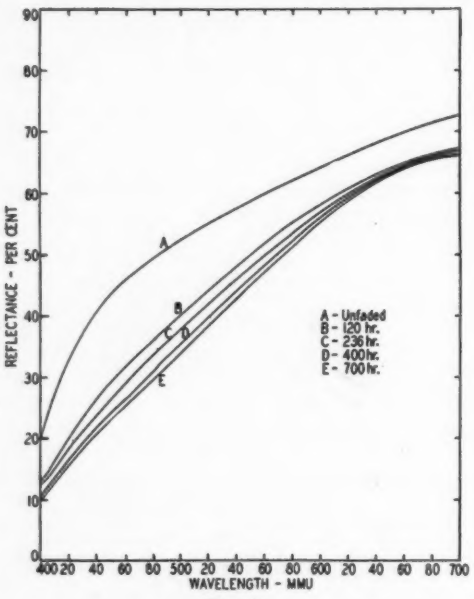


Fig. 3.
Reflectance of Irradiated Sprucewood Meal

A mildly hydrolyzed diazomethane-methylated wood meal sample was irradiated in the Sterilamp apparatus. This sample faded at approximately the same rate as freshly prepared wood meal and suffered similar changes in methoxyl and lignin contents. It was impossible to draw any conclusions as to the effect of methylation on color stability because of the age and history of the sample. Methylation does increase the brightness of wood meal, but in this case it did not appear to stabilize it.

In the case of Willstätter lignin prepared from sprucewood the reflectance drop due to irradiation was quite uniform at all wavelengths in the visible spectrum. Although the reflectance of the unexposed lignin was low, the reflectance at 458 mμ dropped in 246 hours from 25.5 to 16.0%, a drop of 37% of the original reflectance. There was comparatively little change in methoxyl content in view of the substantial change in color caused by irradiation.

Ultraviolet Irradiation of Native Lignin

Brauns *(4)* has developed a technique for removing from sprucewood a fraction believed to be native lignin. Three grams of this native lignin were placed in the Sterilamp apparatus. In order to avoid losses of sample the drum was not rotated as in previous experiments. One end of the drum was left open so that the lignin spread over the bottom of the drum could be stirred with a glass rod occasionally. Samples were withdrawn after 72, 144, and 216 hours for measurement of reflectance and determination of methoxyl content. The data are shown in Fig. 4 and Table IV.

TABLE IV.—ULTRAVIOLET IRRADIATION OF NATIVE LIGNIN

Sample	Exposure Time hours	Methoxyl %	Reflectance at 458 mμ
Sₙ-0	0	14.81	62.0
Sₙ-1	72	14.56	60.5
Sₙ-2	144	14.47	55.5
Sₙ-3	216	14.20	51.0

The time of irradiation in hours per gram of material was greater in this experiment than in previous work because of the small amount of native lignin irradiated.

Fig. 4 shows that the color of the native lignin was relatively stable toward exposure to the light. The maximum loss of reflectance was 17.8% of the original value. The maximum loss of methoxyl was low, amounting to less than 5% of the original methoxyl.

Under the specific conditions of these experiments the native lignin was more resistant toward degradation by ultraviolet light than any one of the other ligneous materials irradiated. This was somewhat surprising in view of the considerable changes observed in the lignin isolated from irradiated wood meal.

A comparison of differences in Kubelka and Munk numbers, K/S, at 458 mμ indicated that eight hours of exposure were necessary to discolor the native lignin to the same degree that the Willstätter lignin was discolored in one hour. After correction for the relative amounts of materials irradiated the exposure time ratio became approximately 16 to 1 instead of 8 to 1.

No definite explanation for the behavior of the native lignin was apparent. It is possible that the isolated native lignin differs in some respect from the lignin as it exists in the wood. It is also possible that both lignin and carbohydrate material must be present together before the ultraviolet radiation can exert its maximum influence.

The first theory is supported by the observation that there is a difference in the alcohol solubility of the isolated native lignin and the lignin as it occurs in the wood. This is evident from the fact that only a small fraction of the total lignin present in the wood can be extracted and isolated as native lignin. The alcohol insolubility of the remainder of the lignin is thought to be due either to the existence of the lignin in a higher state of polymerization or to the existence of a lignin-carbohydrate linkage.

The other explanation presupposes that at least a part of the lignin in wood is bound to carbohydrate material by a chemical linkage. This linkage may be broken by irradiation, leaving the lignin in a nascent state in which it is especially vulnerable to degradation by photochemical reactions.

The ultraviolet spectral absorption curves for the original native lignin and for the sample exposed to the Sterilamp for 216 hours indicated that the structural groups responsible for the typical absorption spectra of lignin and its derivatives have been considerably changed by the action of the light.

A Study of Alcohol-Soluble Extractives

Analysis of irradiated wood meal samples both before and after extraction with alcohol led to the following observations: (1) before extraction of the irradiated samples the methoxyl content was lower than the methoxyl content of the original unexposed samples. This apparent loss of methoxyl was due to irradiation alone. The methoxyl groups had probably either been decomposed to volatile products or had been so altered that they no longer appeared as methoxyl groups in the determination. The extent of these changes was sufficient to indicate that the lignin was being demethoxylated. (2) The lignin content was always lower after extraction than before. This indicated that the alcohol removed from the irradiated wood meal a fraction which appeared as lignin in the unextracted samples. (3) The methoxyl content was slightly higher after extraction than before, indicating that the fraction removed by the alcohol had a low methoxyl content.

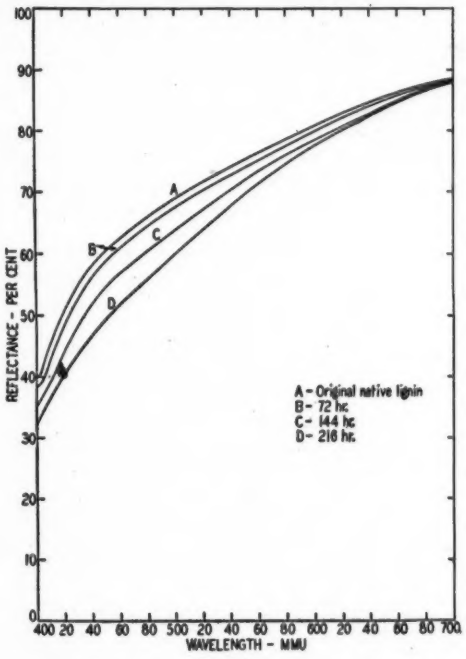


FIG. 4.
Reflectance of Irradiated Native Lignin

All the alcohol-soluble extractives had been thoroughly removed from the wood meal used in these experiments before irradiation was begun. After irradiation of the wood meal with ultraviolet light, alcohol extraction yielded colored solutions. With longer periods of irradiation, the solutions became more highly colored, ranging from a light golden yellow to a deep red-brown hue. The odor of vanillin was noted in many of the extracts upon their removal from the Soxhlet apparatus.

This extractive material was obviously rendered alcohol soluble by the action of the light. Fading of the wood meal was also due to irradiation. The coloring matter in alcohol solutions of extractives increased as the amount of coloring matter in the wood meal increased. These observations indicated that an investigation of these extractives might yield information regarding the chemical changes resulting from irradiation of the wood meal. It was believed that it might also lead to a better understanding of the mechanism of the fading process.

The spectral transmittance of the alcoholic solutions of extractives from the irradiated wood meals and lignins was determined on the spectrophotometer. In each series of tests in which irradiation time was the principal variable a family of transmittance curves was obtained. When K/S numbers were calculated and plotted against wavelength a family of parallel curves was obtained for each series.

The pH of the alcoholic extracts was determined on the Cameron portable glass electrode apparatus. This was calibrated against a water solution of potassium acid phthalate. The data were intended only to indicate trends in the pH values of the extracts within a par-series.

The extracts from the irradiated Willstätter lignin showed the same characteristic drop in pH as the other extracts, identifying lignin as a source of acidic products resulting from irradiation of ligneous materials.

These data indicated that as irradiation is increased there are formed either more products of an acidic nature or products of higher acidity. The formation of acids indicates that one effect of irradiation has been to induce oxidation reactions.

As irradiation time increased the alcoholic extracts showed increased ability to reduce Fehling solution.

The question of how much material was removed from the irradiated wood meal by alcohol extraction can be answered only superficially by the single test made in this work. Sample S_3-4 representing 710 hours of Sterilamp irradiation of sprucewood meal was weighed before and after extraction. The loss in weight represented 4.5% of the weight of the dry unextracted sample.

The spectral absorption curves of several of the alcoholic extracts from the Fade-Ometer series were studied. The general shape of these spectral absorption curves was not particularly distinctive. The curves for lignins and most lignin derivatives are

much like these curves in the longer and shorter wavelength regions, but they always show a pronounced minimum between 2500 and 2700 Å and a maximum between 2700 and 2900 Å. The curves showed a trend away from a minimum in the region where such a minimum would be expected in ligneous materials. It is quite evident that if this extractive material had its origin in the lignin fraction of the wood meal, the characteristic absorbing groups in the lignin did not exist as such in the extract. The trend of the curves indicated a progressive change at wavelengths below 3000 Å that could be interpreted as an alteration of the absorbing groups in lignin as a function of time of exposure to the ultraviolet light.

Portions of the extracts from the wood meal sheets irradiated in the Fade-Ometer were combined and concentrated for an investigation of the nature of the alcohol-soluble extractives. After concentration under reduced pressure, the residue was taken up in dioxane. The fraction insoluble in dioxane was believed to be of carbohydrate origin and was not investigated further than the observations that it was water soluble, forming a dark red-brown solution, and that it had reducing power for Fehling solution.

The dioxane-soluble material was separated into ether-soluble and ether-insoluble fractions by precipitation into ether. The ether-insoluble material was a light brown precipitate having a methoxyl content of 10.6%. It showed a considerable reducing power on Fehling solution. Physically, this material very much resembled native lignin but was of somewhat darker color. This material gave a phloroglucinol color reaction similar to those of vanillin and protocatechuic aldehyde.

The similarity between the ultraviolet absorption curve of this particular fraction and that of the total alcohol extract indicated that this fraction may have been one of the principal components of the extractive material.

The ether-soluble fraction was separated into aldehydic, acidic, and phenolic fractions by extraction with sodium bisulphite, sodium bicarbonate, and sodium hydroxide solutions. From the aldehydic fraction vanillin was isolated and identified by melting point, color reactions, and by its ultraviolet spectral absorption curve. Although the amount of vanillin resulting from ultraviolet irradiation of wood meal was probably relatively small, its isolation from the alcoholic extract is of major importance in establishing the mechanism of the photochemical changes taking place in the lignin. Of the various components of extracted sprucewood, the lignin is the only fraction which could yield vanillin as a result of photochemical reactions. Therefore, the fact is established that the lignin suffers some degradation as a result of irradiation with ultraviolet light.

The isolation of vanillin also supplied evidence as to the nature of the photochemical reactions taking place. Vanillin is obtained from lignin by various chemical processes, all of which involve oxidation reactions. If the photochemical reactions yield vanillin from lignin, it seems most probable that these reactions are at least in part photochemical oxidations. Supporting evidence for this oxidation theory has been supplied by observations on the alcoholic extracts of irradiated wood meal. Their acidity and ability to reduce Fehling solution increased with time of irradiation. The increase in the acids and aldehydes present in the extracts was undoubtedly due to oxidation reactions. The aldehydic fraction probably contained a mixture of several aldehydes. There were apparently several different acids present in the acid fraction, including vanillic acid.

Irradiation of Vanillin

With the identification of vanillin in the alcoholic extracts the question arose as to the extent to which it might have been responsible for the discoloration of the irradiated wood meal.

Vanillin solutions and sheets of filter paper impregnated with vanillin were irradiated by the Sterilamp. The colorless vanillin solutions soon became amber to red brown, a coloration not unlike that of the alcoholic extracts from irradiated wood meal. Crystals appeared in the alcohol solution on irradiation which were believed to be dehydrodivanillin. In water solution vanillin discolored more slowly. The impregnated sheets faded extensively, whereas the unimpregnated control sheets showed virtually no loss of reflectance. Therefore, the fading of the impregnated sheets was due to the presence of the vanillin.

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(2) Bakker, H., *Chem. Weekblad* 34:543-545 (1937); Zellstoff u. Papier 18:160 (1938).
(3) Thayer, R. N., and Barnes, B. T., *J. Optical Soc. Am.* 29:131-134 (March, 1939).
(4) Brauns, F. E., *J. Am. Chem. Soc.* 61:2120-2127 (1939).

High Grade Filter Papers Being Imported

Washington, D. C., November 20, 1940—United States chemists have been assured by the Bureau of Standards, Department of Commerce, that interruption in supply of high-grade analytical filter paper, heretofore imported from Europe, is unlikely.

According to information received by the Bureau, while interruption of supply has occurred to some extent, much foreign paper is still being received. In addition, manufacture of the higher grades has been undertaken in the United States.

Shipments of the English Whatman papers to this country since the beginning of the war have been approximately twice normal and are now running about three times normal.

The supply of Swedish Munktell papers is somewhat depleted but regular shipments are expected in the near future.

The Baker and Adamson paper is made in the United States from stock purchased in Sweden. It is of the same grade as the highest grade of foreign paper. No information has been received as to the continuance of supply.

The supply of German Carl Schleicher and Schull paper is much depleted but all of the various grades of it are now being made in the United States by the American firm of the same name from stock made in American paper mills. The Bureau finds that an examination of these papers reveals that they compare favorably with the German product. The Bureau made thorough tests of the highest grade, the double acid-washed papers, and the papers were found to be as good as and in some respects better than the German papers.

While the various kinds of the American papers bear the same designation as the German papers, the American concern stated that they had no connection with the German firm.

The Eaton-Dikeman Company, a domestic manufacturer of filter papers made from paper stock also produced by them, have made the lower grades of analytical papers for a number of years.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard; Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 16, 1940

SUMMARY

Wall board .....10 crates, 3 cs.
Newsprint .....8,982 rolls
Filter paper.....29 cs.
Miscellaneous paper .....13 cs.

WALL BOARD

American Defibrator, Inc., ——, Liinahamari, 10 crates, 3 cs.

NEWSPRINT

H. G. Craig Co., Inc., ——, Donnacona, 357 rolls.
——, ——, Comeau Bay, 7,208 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 379 rolls.
International Paper Co., ——, Gatineau, 372 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 324 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 342 rolls.

FILTER PAPER

Philippine American Drug Co., ——, Liinahamari, 3 cs.
E. H. Sargent & Co., ——, Liinahamari, 26 cs.

MISCELLANEOUS PAPER

M. J. Corbett & Co., ——, Petsamo, 13 cs.

RAGS, BAGGINGS, ETC.

Chase National Bank, ——, Murmansk, 785 bls. flax waste.
——, ——, Rio de Janiero, 511 bls. cotton linters.
Padawer & Co., ——, Bombay, 100 bls. cotton waste.
W. Intner Co., ——, Bombay, 350 bls. cotton waste.

WOOD PULP

Pulp Sales Corp., ——, Petsamo, 2,432 bls. prime strong sulphate, 460 tons.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 16, 1940

Pulp Sales Corp., ——, Liinahamari, 6,154 bls. prime strong sulphite, 1,155 tons; 3,678 bls. prime strong sulphate, 683 tons; 214 bls. prime bleached sulphate, 42 tons.
Angler Corp., ——, Liinahamari, 80 rolls wrapping paper.
Specialty Converters, ——, Liinahamari, 299 rolls wrapping paper.
Jay Madden Corp., ——, Liinahamari, 45 rolls wrapping paper.
H. Reeve Angel & Co., Inc., ——, Liinahamari, 156 rolls newsprint.

LOS ANGELES IMPORTS

WEEK ENDING NOVEMBER 16, 1940

——, ——, Tokio, 1 cs. writing paper.

Paper and Cordage Men Meet

PHILADELPHIA, Pa., November 18, 1940 — The Philadelphia Paper and Cordage Association held its final regular meeting for the year on Friday last at Adelphia Hotel. President George K. Hooper presided and conducted a meeting of general discussion centering on the annual Christmas Party, which this year will be held on Thursday, December 19th at noon in Adelphia Hotel. This is the party at which the Association entertains sixty children from the Salvation Army Settlement House, and from the plans discussed by Harry S. Platt, of the Denny Tag Company, Santa Claus will have an exceptionally liberal assortment of toys, candies and clothes to put under the Christmas Tree on the 19th, a goodly portion of the funds at hand having been raised by the activities of the Ladies' Auxiliary of the Association, which is composed of wives and daughters of the members and the office force in various paper houses. Everett Hoffman is in charge of the musical program and entertainment.

Nathaniel Saxe, president of the Paper Trade Association of Philadelphia, attended the meeting and accepted on behalf of that group an invitation to participate in the Christmas Party this year. This will be the first year that the Paper Trade Association of Philadelphia has joined in celebrating this Christmas Party, and assurances are given that the Party will be the largest and most successful in the history of the Association.

The nominating committee appointed by President Hooper placed in nomination the following names as candidates to fill the offices for 1941: John J. Shinners, president, Acme Specialty Sales Company; Harry J. Smith, vice-president, Thos. W. Price Company; Everett M. Hoffman, treasurer, J. E. Fricke Company; Richard Gifford, secretary, H. M. Gifford Manufacturing Company. Directors, **six of whom are to be elected, are: George K. Hooper, J. R. Howarth, E. K. Lay, Frank M. Kurz, Joseph H. Miller, Fred I. Brower, Nixon H. Richman, Carroll Gardner, E. L. Richards, Arthur Sherrill, H. Satterthwaite and Lee Johnson.**

Menasha Announces Appointments

Leo E. Croy, executive vice-president of The Menasha Products Company, Menasha, Wisconsin, division of Marathon Paper Mills Company, has announced the following appointments of executive personnel, effective immediately:

Frank L. Broeren, formerly manager of the company's sales to paper jobbers, is named director of sales of The Menasha Products Company. A. W. Stompe, formerly assistant Jobber sales manager, will succeed Mr. Broeren as Jobber sales manager.

Both men are widely known to paper merchants and to the paper industry. Mr. Broeren has been identified with Menasha's sales department for more than twenty years, and Mr. Stompe since 1927.

New York Paper and Pulp Market Review

Paper Prices Generally Reported As Moderately Firm With No Important Changes Occurring This Week—Pulp Markets Rather Weak With Prices Unchanged — Paper Stock Market Is Firm.

Office of the PAPER TRADE JOURNAL,
Wednesday, November 20, 1940.

With the steady rise in general business activity the prospect for an increasing volume in the wholesale paper market continues to improve. The consumption of paper closely follows the trend of general business and indications of an increasing demand for paper have been apparent for some weeks, and are now noted in the larger sales volume in some kinds of paper.

Reports from many parts of the country indicate an improved business situation. The outlook for the remaining weeks of this year is for a rather rapidly rising volume of business, exceeding that of any like period in former years. At this date, business in most of the Eastern States and on the Pacific Coast is good, in many of the Central States moderately good. Reports from many of the Southeastern States indicate current business is moderately good, while it is stated to be fair in most of the Southwestern States.

The index of general business activity rose to 111.1 per cent for the week ended November 9, from 109.7 per cent for the preceding week, compared with 107.3 per cent for the corresponding week last year. Paper production was little changed.

The Federal Reserve Board index of industrial production for October advanced above September and October, 1939. The index was 128, compared with 125 for September and with 121 for October, 1939.

Paper production of 250 mills for the week ended November 9 was estimated at 89.0 per cent, compared with 98.7 per cent for 1939, with 80.9 per cent for 1938, with 61.7 per cent for 1937, and with 87.6 per cent for the corresponding week for 1936.

Paper board production for the week ended November 9 was 78.0 per cent, compared with 83.0 per cent for 1939, with 66.0 per cent for 1938, with 56.0 per cent for 1937, and with 81.0 per cent for the corresponding week for 1936.

Domestic newsprint production for October, 1940, aggregated 88,192 tons, Canadian production, 309,957 tons, and Newfoundland output, 31,573 tons. Total North American production was 429,722 tons, compared with 389,016 tons for October, 1939. Stocks at domestic mills amounted to 18,648 tons at the end of October, 1940, while Canadian mill stocks aggregated 180,326 tons. Total domestic and Canadian mill stocks were 198,794 tons, compared with 208,532 tons for October, 1939.

No important change from prevailing representative quoted market prices has been reported on any grade of paper this week. The market as a whole is only fairly firm, with a little more activity reported in some quarters of the trade. The demand for some grades of paper board market is reported less than seasonally at this date. Kraft wrapping paper continues active with a lagging demand reported on some grades of tissue.

Mechanical Pulp

No important change in demand or prices has been reported on mechanical pulp this week. Current prices are a little weak. Domestic mill stocks at the end of the third quarter aggregated 25,253 tons, compared with 21,861 tons for the third quarter of 1939.

Chemical Pulp

The chemical pulp market is rather weak at this date, with prices holding unchanged on standard grades of domestic and Canadian pulp. Stocks of bleached sulphite at the end of the third quarter totaled 44,565 tons, compared with 46,468 tons for the third 1939 quarter; unbleached sulphite, 23,501, compared with 29,151 tons for 1939; bleached sulphate, 4,437 tons, compared with 4,097 tons for 1939; unbleached sulphate, 25,414 tons, compared with 14,379 tons for 1939, and soda pulp, 5,535 tons, compared with 4,445 tons for the third quarter of 1939.

Rags

Prices on all grades of domestic rags continue firm under moderately good buying of a rather moderately good buying of a rather limited number of grades. White shirt cuttings and new unbleached grades are very firm, with the mill prices ranging at from 6.75 to 7.00 on No. 1 white shirt cuttings. No important change from prevailing representative quoted market prices has been reported this week.

Old Rope and Bagging

The old rope market continues firm, under the influence of limited supplies and steady mill buying, at established prices on old No. 1 domestic Manila rope, at from 4.50 to 4.75. Sisal strings are in moderate demand, at from 2.10 to 2.35.

Trading in old bagging is somewhat restricted by limited supplies at this date. Imports are sharply down and collections of domestic supplies are reported slow. Quotations on foreign gunny are nominal and all bagging prices are practically nominal at this date, as trading is too limited to establish a more definite market level.

Old Waste Paper

The paper stock market, as a whole, is quite firm at this date, with the lower grades, including No. 1 mixed paper, quite strong. Mill shipments continue in good volume, with stocks moving most active to Western mills at this date. Prices hold unchanged, with the exception of a moderate advance in compressed bales of old kraft, of paper mill quality, which grade is currently quoted at from 1.40 to 1.50.

Twine

Buying for the Christmas holiday has brought more activity into the twine market on some grade. Prices, as a whole, are firm and no important changes have been reported this week on any grade of hard or soft fiber twine.

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C A P S — Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

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Wood Pulp & Paper Agents

60 East 42nd Street New York City

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, November 20, 1940.

BLANC FIXE—Quotations on blanc fixe are firm and continue unchanged at prevailing market levels. Demand reported moderate for the week. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is offered at $50 per ton, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm with demand reported moderate for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are reported firm. Demand fair for the week. Standard domestic casein, 20-30 mesh, is currently quoted at 12 cents per pound; 80-100 mesh, at 12½ cents per pound; all prices in bags, car lots. Standard Argentina casein is currently offered at 12 cents per pound. No quotations on French casein.

CAUSTIC SODA—Prices on caustic soda are firm and unchanged. Shipments continue in steady volume. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—The demand for chlorine is reported moderate. Prices are firm and continue unchanged for the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported as firm with prices higher for the week, "G" gum rosin is currently quoted at $1.90 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $1.88 per 100 pounds, in barrels, New York. Seventy per cent gum rosin is quoted at $2.58 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm under a good demand with current quotations continuing nominal. Domestic salt cake is currently quoted at $17 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $20 per ton on imported salt cake continues nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Shipments reported in moderate volume. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are reported firm and continue unchanged at prevailing market quotations. Pearl is currently quoted at $2.90 per 100 pounds; powdered starch at $3 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported moderate for the week. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.60 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$5.75
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. l. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	31.05	" 36.50	32.20	" 37.75
85% Rag	....	"	29.90	" 35.00
75% Rag	23.60	" 27.75	24.75	" 29.00
65% Rag	....	"	21.65	" 26.25
50% Rag	17.55	" 21.50	18.70	" 22.75
25% Rag	14.65	" 17.75	15.80	" 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$9.35	@ $11.50	$11.55	@ $12.75
No. 2	8.50	" 10.25	9.65	" 11.75
No. 3	8.05	" 9.25	9.20	" 11.25
No. 4	7.70	" 9.50	8.90	" 10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	9.05	"	$10.50
No. 2 Offset	8.40	"	9.75
A Grade E. F.	8.20	"	9.50
A Grade S. & S. C.	8.45	"	9.75
B Grade E. F.	7.65	"	8.75
B Grade S. & S. C.	7.90	"	9.00
C Grade E. F.	7.35	"	8.50
C Grade S. & S. C.	7.60	"	8.75
D Grade E. F.	7.10	"	8.25
D Grade S. & S. C.	7.35	"	8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—	
Moist	No prices
Dry	No prices

(Delivered)

No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	3.87½
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.75
Strong Unbleached Sulphite	3.17½	"	3.75
News Grade, delivered Unbleached Sulphite	58.00	"	61.50

(On Dock, Atlantic Ports)

Kraft Bleached	4.12½	"	
Kraft Light & Strong	3.50	"	3.75
Kraft No. 1	3.40	"	3.60

(F. o. b. Pulp Mill)

Kraft Domestic and Canadian	2.75	"	3.37½

(Delivered)

Soda Bleached	3.30	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.

Shirt Cuttings—			
New White, No. 1	6.75	@	7.00
Silesias No. 1	4.50	"	4.65
New Unbleached	6.50	"	6.75
Blue Overall	4.35	"	4.50
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.50	"	3.65
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.50	"	1.65
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.00	"	1.10
No. 2	1.00	"	1.05
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

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NEW YORK CITY

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No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o .b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	2.50	"	2.75
Wool Tares, light...	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging	2.25	"	2.50
Manila Rope—			
Foreign	4.75	"	5.00
Domestic	4.50	"	4.75
Jute Threads.....	2.62½	"	2.75
Sisal Strings.....	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	"	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book...	.80	"	.85
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.70	"	1.75
Ledger Stock Colored	1.30	"	1.40
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine Compressed bales..	1.40	"	1.50
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.45	"	.55
Corrugated	.65	"	.67½
No. 1 Mixed Paper..	.32½	"	.35

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.18	@	—
White Hemp.....	.18	"	—
Fine Polished—			
Fine India.....	.22	"	—
Unpolished—			
Box	.16	"	—
Paper Makers.....	.13	"	—
Tube Rope.....	.14½	"	—
Wall Paper.....	.16	"	—
Wrapping	.16	"	—
Soft Fiber Rope...	.14	"	—
Cotton	.24	"	—

(Hard Fiber)

Medium Java.....	.10	"	—
Mex. Sisal.....	.09½	"	—
Manila	.23	"	—

PHILADELPHIA

Domestic Rags (New)

Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06½	@	.07
New White No. 2.	.03½	"	.04
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04
Black Silesias, soft	—	"	.03
New Unbleached...	.06	"	.06¼
Washable Prints...	.02¼	"	.02½
Washable, No. 1..	—	"	.01½
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01½
Fancy Percales....	—	"	.03
New Black Soft...	.02¼	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03½	"	.03¾
No. 2 Mixed.....	.01¾	"	.02
Corduroy	.01¾	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1...	1.10	"	1.15
Domestic No. 2...	.95	"	1.00
Roofing Bagging..	.85	"	.90

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign .....Nominal			
Domestic	2.25	@	2.50
Manila Rope.....	—	"	5.00
Sisal Rope.....	2.00	"	2.25
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	2.25	"	2.50
No. 2.....	—	"	1.50
Wool Tares, heavy..	3.75	"	4.00
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	2.25	"	2.50

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard White	2.40	@	2.50
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	2.00	"	2.10
No. 2 Soft White	1.60	"	1.75
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.65	"	1.70
Ledger Stock, colored	1.10	"	1.15
No. 1 Books, heavy..	.80	"	.85
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.50	"	.55
Container Manila....	.45	"	.50
Kraft Paper.....	1.35	"	1.40
No. 1 Mixed Paper..	.40	"	.45
Straw Board Chip...	.40	"	.45
Binders Board Chip..	.40	"	.45
Corrugated Board...	.60	"	.65
Overissue News.....	.70	"	.75
Old Newspapers.....	.50	"	.55

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.00
No. 1 Soft White	2.00	"	2.25
No. 2 Mixed.....	.75	"	.80
Solid Ledger Books..	1.50	"	1.75
Overissue Ledger Stock	1.75	"	2.00
Mixed Ledgers.....	1.50	"	1.75
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock.....	.75	"	.85
Manila Env. Cuttings	1.85	"	2.00
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News..	1.40	@	1.50
No. 1 Kraft.....	1.25	"	1.30
Extra No. 1 Kraft...	1.00	"	1.65
Mixed Papers.....			
Print Manila.....	.55	"	.60
Container Manila			
Old Newspapers.....	.50	"	.55
Paper Wool Strings.	.95	"	1.10
Overissue News.....	1.00	"	1.10
Box Board Chips....	.40	"	.45
Corrugated Boxes...	.60	"	.65
Kraft Corrugated Boxes	1.00	"	1.05
New Kraft Corrugated Cuttings	1.45	"	1.60
Screening Wrappers.	.70	"	.80

Bagging

f.o.b. Boston

Gunny Bagging—			
Foreign	2.60	"	—
Domestic	2.25	"	2.40
Sisal Rope.....	2.25	"	2.50
Mixed Rope.....	.85	"	1.00
Transmission Rope—			
Foreign	—	"	2.40
Domestic	2.00	"	2.25
Soft Jute Rope.....	3.25	"	3.50
Manila Rope—			
Foreign	5.00	"	5.25
Domestic	4.75	"	5.00
Jute Carpet Threads	2.00	"	2.25
Bleachery Burlap....	4.00	"	3.25
Scrap Burlap—			
Foreign	2.35	"	2.50
Domestic	2.15	"	2.35
Scrap Sisal.....	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares—			
Foreign, Heavy...	2.40	"	2.50
Domestic	2.40	"	2.50
Aust. Wool Pouches.	2.75	"	3.00
New Burlap Cuttings	3.75	"	4.00
Heavy baling bagging	2.75	"	3.00
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	.07	"	.07¼
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	.07	"	—
Underwear Cutters, Bleached	—	"	.07
Silesias No. 1	.05	"	—
New Black Silesias..	3.00	"	3.25
Red Cotton Cuttings	.04	"	.05
Soft Unbleached...	.07	"	.07½
Blue Cheviots.....	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls.....	.04¾	"	.05
New Black. Soft..	.03	"	.03¼
Khaki Cuttings....	.02½	"	.03
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.04½	"	.05
New Canvas.....	.06¼	"	.07½
B. V. D. Cuttings...	.07	"	.07½

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	2.75	"	3.00
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....			
Old Blue Overalls			
Thirds and Blues—	1.50	"	1.75
Miscellaneous	1.25	"	1.35
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.20	"	1.30
No. 2.....	.95	"	1.00
No. 3.....	.85	"	.95

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....	(nominal)		
Dutch Blues.....	(nominal)		
New Checks and Blues	(nominal)		
Old Fustians.....	(nominal)		
Old Linsey Garments.	(nominal)		
New Silesias.....	(nominal)		

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings....	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.10
Blanks	1.50	"	1.60
Krafts	1.40	"	1.50
New Kraft Cuts.....	1.60	"	1.75
Overissue News.....	1.00	"	1.10
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.40	"	.50
Roofing Stocks—			
No. 1.....	.95	@	1.00
No. 2.....	.85	"	.90

New Literature

Fuel oil burning, pumping and heating equipment, describing the Enco Burner, is the subject of a folder issued by The Engineer Company, 75 West street, New York. It describes the company's oil burning installations and specifications of pumps, heaters, etc., the Enco interchangeable oil burner and oil pumping outfits.

The RQ photo-troller is described in Price List 18-312, issued by Department 8-N-48 of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. This is a general purpose photoelectric relay for operation on 115 volts indoor service. The booklet gives some of the more common applications, data and operating distances.

Electric flow meters are discussed in Catalogue No. 2007, issued by The Brown Instrument Company, Wayne & Roberts avenues, Philadelphia, Pa. It covers the complete line of the company's meters for the measurement and control of steam, air, oil, water, chemicals and other fluids. Schematic diagrams, piping layouts, etc., are included.

Electric tachometers is the subject of Bulletin No. 640, issued by The Esterline-Angus Company, Indianapolis, Ind. It describes the merits of the electrical method of measuring and recording speed, describes the generator, gives technical data, and discusses drives and the general uses of tachometers.

Kilowatt demand meters are described in Booklet B-2234, issued by Department 7-N-20 of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. The publication gives information on the widely used "R" kilowatt hour meters for use in industrial and other plants where continuous records of electrical demand is required.